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[1] Deutsche Med. Wochenschrift, 1895, No. 38.

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The impaction of a foreign body in the œsophagus is usually accompanied by choking and gagging, but in children these symptoms may neither be noticed nor mentioned. In adults subjective sensations of a foreign body being present may be complained of and should not be too lightly discarded. When ocular inspection reveals nothing in the pharynx or lower pharynx the diagnosis should be regarded as incomplete pending a radiological and endoscopic examination.

FIG. 1.

Perforation of wall of œsophagus by a piece of bone which also perforated the wall of the aorta.

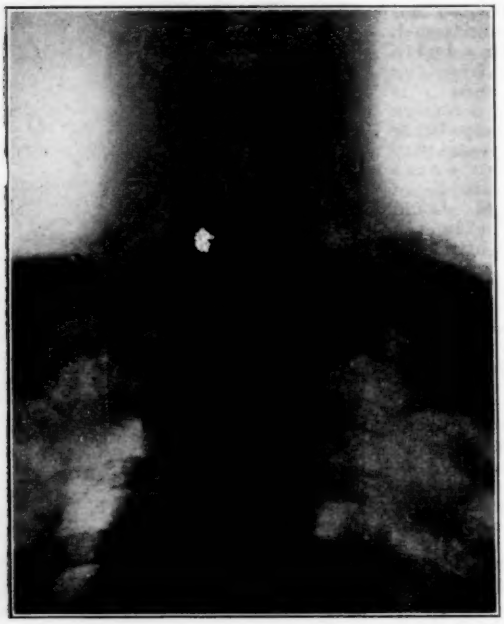
The practice of digital examination is to be condemned, the finger being prone either to push the foreign body farther down or to lacerate the soft tissues. Inverting the patient should also be discouraged owing to the danger of subglottic impaction. Blind bouginage is equally reprehensible, the thin and movable œsophageal walls being frequently ruptured as a result. Should the cervical œsophagus be ruptured emphysema or abscess may result, while rupture in the thoracic area induces profound shock, emphysema, mediastinal suppuration, with at times perforation into the pleural cavity necessitating the performance of a thoracotomy for drainage purposes. In such cases no attempt should be made to remove the foreign body until the rupture has had the chance of healing, but an immediate gastrostomy should be performed in order to feed the patient and to secure rest for the injured tissues.

When a foreign body completely or all but completely blocks the œsophageal lumen, frothy secretion tends to collect in the pyriform sinuses (Jackson's sign) and to overflow into the larynx, inducing cough, huskiness, and even pulmonary symptoms. At other times pressure necrosis is induced with ultimate perforation and formation of an œsophagotracheal fistula or the escape of fluids into the pleural cavity or mediastinum. The sharper the foreign body the greater the risk of hæmorrhage or perforation, hence the danger of an impacted safety-pin with the point

pointing upwards. Damage may also be done to the larynx during attempts to remove a foreign body tightly wedged in the hypopharynx. Although a foreign body may remain impacted in the œsophagus for years, and may at times become encysted, its presence is always a source of danger owing to the risk of ultimate perforation of its walls.

Flat foreign bodies—e.g., coins—lie in the œsophagus in the coronal plane and usually at the level of the sterno-clavicular joint (Fig. 2), whereas if inhaled and impacted in the trachea they lie in the sagittal plane. The initial symptoms, choking, gagging, and retching, usually pass off after a short time, leaving, however, the sensation of "something" lodged in the throat.

FIG. 2.



Halfpenny in the œsophagus showing the usual point of impaction.

Odynophagia may or may not be present, while dysphagia depends largely upon whether the foreign body causes partial or complete obstruction, whether it has caused or is causing injury to the mucosa or to adjoining laryngeal structures. Dyspnœa results if the foreign body is large enough to cause pressure on the trachea.

Before carrying out an œsophageal examination the buccal cavity, the lower pharynx, the upper orifice of the hypopharynx, and the larynx should be carefully inspected. In order successfully to perform an œsophagoscopy the patient should lie recumbent on the table with head slightly elevated and extended at the occipito-atloid joint. In this way the cervical portion of the spine is brought into line with the pharyngeal and buccal cavities. In young children no anæsthetic, local or general, is required. In adults, however, most operators prefer to have a general anæsthetic administered, although some, more especially our American confrères, are content merely to swab the pharyngeal mucosa with a 5–10 per cent. solution of cocaine. In young children no examination should be prolonged beyond 15 to 20 minutes, in adults beyond three-quarters of an hour. It is better to make two or more examinations than one prolonged one. As the œsophagoscope is being slowly introduced every portion of the œsophageal lumen should be carefully scrutinised, special attention being paid to the posterior wall where flat foreign bodies are prone to lodge. If attention is not paid to this point the instrument may override the foreign body as the mucosa is pushed forwards. As the œsophagoscope is slowly withdrawn the walls should again be carefully examined. The presence of a foreign body may induce a certain degree of spasm which adds to the practical difficulties of its detection. Much ingenuity is required in selecting the proper type of instrument with which to seize and to withdraw it without injuring the soft and movable œsophageal walls. The suggestion made by Chevalier Jackson of seeing, if possible, a duplicate of the impacted foreign body is well worthy of note. Great care is necessary to avoid wounding the mucosa when an attempt is being made to extract sharp-pointed objects, such as dentures with metal clips, pieces of bone, safety-pins, &c. Dilating the œsophagus with a Hill's dilator is at times of assistance, as is also the rotation of the foreign body in order to secure that any sharp edge or projection is trailed from below upwards. After removal of the foreign body a reinspection of the œsophagus should be made and a second X ray photograph taken, as more than one foreign body may have been present.

In those rare, and to-day exceptional, cases where attempts to remove the foreign body per vias naturales have failed, the performance of an œsophagotomy has to be considered. The operation, practicable only, however, when the foreign body is lodged in the cervical œsophagus, is by no means free from danger. With existing technique it should be possible to remove by œsophagoscopy any foreign body which has been swallowed and become impacted, notwithstanding the practical difficulties encountered.

### FOREIGN BODIES IN THE AIR PASSAGES.

The symptoms presented by a foreign body impacted in the air passages will naturally depend upon its exact location, whether in the laryngeal cavity, the trachea, a bronchus, or a bronchiole. If in the larynx there is, as a rule, some interference with respiration, cough, hoarseness, odynophagia, and occasionally hæmoptysis. The larger the foreign body the greater the amount of dyspnœa and distress. In severe obstruction cyanosis and asphyxiation may become so urgent as to call for an immediate tracheotomy.

If lodged in the trachea Chevalier Jackson has drawn attention to three symptoms which he regards as pathognomonic—viz., an "audible slap," a "palpatory thud," and an "asthmatoid wheeze." The "audible slap," best heard at the patient's open mouth, is due to the expiratory blast striking the foreign body in its passage outwards; the "palpatory thud" indicates the actual detection of air impinging against the foreign body by means of the fingers placed over the trachea; while the "asthmatoid wheeze" is heard as the air streams past a foreign body impacted in one of the larger bronchial tubes.

It is important to note that a foreign body not causing severe obstruction may, after the initial irritative symptoms have passed off, cause no urgent symptoms of any sort for a varying period. This constitutes what Jackson has described as "the symptomless interval." Owing to the larger lumen of the right bronchus and to its axis being more in line with the trachea than is that of the left bronchus, which also is somewhat narrower, foreign bodies have a greater tendency to become impacted in the former and also to slip down into the deeper portion of the bronchial tree.

A foreign body which completely obstructs a bronchus causes atelectasis, drowned lung, and, if not removed, pulmonary abscess. In addition, the opposite lung becomes emphysematous (compensatory) owing to overwork. The non-entrance of air into the lung causes loss of movement of the chest wall on the affected side, an impaired percussion note, and decreased vocal fremitus. Moreover, the air in the pulmonary alveoli below the site of obstruction becomes gradually absorbed with a resulting lung collapse and consequent cardiac displacement. Where

the bronchus is, however, only partially occluded the physical signs will vary with the degree and constancy of the obstruction. Râles, both coarse and fine, are heard over the lung beyond the point of obstruction, although most intense just around it, while the percussion note is impaired and the movement of the chest wall and diaphragm more limited than normal. In addition, there develops a state of emphysema on the affected side, an obstructive emphysema, due to the fact that a certain, although small, amount of air enters the lung but very little escapes, with the result that air under pressure is retained in the immediate area of obstruction. Consequently, breath sounds are more or less inaudible and râles are heard.

Organic foreign bodies—e.g., beans, seeds, India corn, &c.—if retained for any length of time, tend to swell and to cork the lumen of the bronchus completely. Eventually they undergo maceration, break up, and induce purulency. The Roentgen ray pictures also vary in cases of partial and complete obstruction. In the former the obstructed side is more transparent, the diaphragm is depressed, and its movement is limited; in the latter the area of obstruction appears dense.

In the event of the foreign body being retained and causing suppuration, an abscess of the lung, bronchiectasis, or gangrene may result. An exact definition of the invaded area, lung-mapping, may be obtained either by the insufflation of carbonate of bismuth or the injection of lipiodol. The insufflation of bismuth is effected by passing a long insufflation tube down the trachea and blowing the powder with the aid of a pneumatic pump along the bronchus of the affected side. If a solution of lipiodol is preferred, about 30 c.cm. is injected by means of a long syringe passed well beyond the vocal cords. The fluid is moved as may be desired by altering the position of the patient and the outlines of any bronchiectatic cavity are thus delineated. In this way it is possible graphically to determine fairly accurately the position, size, and relations of any particular cavity, a matter of the greatest practical importance should the performance of thoracoplasty be contemplated.

Pneumonography, or "lung-mapping," as an aid to the detection of pulmonary suppuration, whether the result of retention of a foreign body or aspiration of septic material consequent to one or other operative procedure in connexion with the upper respiratory tract, has opened up a new and important field of clinical work.

The presence of sepsis demands drainage, and the difficulties of securing an efficient outlet vary with the location of the collection. So far as pulmonary suppuration is concerned, drainage may be secured as the result of an external operation, or by means of aspiration and lavage of the infected cavity through a bronchoscopic tube. An external operation is always attended by grave risk, while bronchoscopic evacuation of the abscess cavity in suitably selected cases is practically free from danger.

Not only may the cavity be freed from its purulent contents by aspiration, but it may also be washed out with a suitable and non-irritating solution, such as that recommended by Moore and Lukens—viz., trinitrophenol gr. ii., Lugol's solution 1 drachm, and normal saline solution 1 pint. The injection is made without any anæsthetic, local or general, once a week or even oftener, care being taken to treat only small areas at each sitting and to avoid flooding healthy lung tissue.

The coöperation of the physician, the surgeon, the radiologist, and the bronchoscopist is essential if the best results are to be obtained. Much thought and consideration are necessary before any actual attempt to remove a foreign body from a bronchus is made, its exact localisation and the proper type of forceps for its removal being of the utmost moment, as rapidity of action is a matter of importance to the patient.

# An Address
ON THE
# FAILED FORCEPS CASE.

*A Post-graduate Lecture delivered at Queen Charlotte's Hospital and at a Meeting of the South-West London Post-graduate Association*

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IT frequently happens that forceps fail to effect delivery, either because they slip or because no progress is made in spite of strong traction. In these cases it is important to re-examine the patient, and review carefully the whole situation rather than persist in ineffectual attempts at delivery which injure the mother and sacrifice the child. In this examination special attention should be paid to the following points.

1. *General Condition of the Patient.*—The time which has elapsed since rupture of the membranes; the presence of a rising pulse or temperature.

2. *Abdominal Examination.*—(*a*) Do the pelvic measurements suggest flattening or general contraction, or are they normal? If pelvic contraction is present, does it allow extraction of a dead perforated baby, or must a Cæsarean section be done. (Internal conjugate less than 3 in., transverse at the brim less than 3½ in.) (*b*) The position of the head in relation to the brim—i.e., is it above, in, or through the brim. The head above the brim can be moved from one iliac fossa to the other. An engaging head has a much narrower lateral excursion, while an engaged head is immobile and grasped with difficulty. When the head has passed the brim there is complete disappearance of the cephalic prominence on abdominal examination. Forceps should not be applied to a floating head, and the higher the head is found to be in the pelvis the more carefully should the indication for their application be considered. (*c*) The condition of the lower segment. The uterus may be tender, especially in the lower segment, and closely moulded to the child. There is great risk to the mother if internal manipulations (especially internal version) are carried out in such circumstances. (*d*) The condition of the child. Can the fœtal heart be heard? If the child is alive, can it be reasonably expected to live even if delivered without further trauma? (*e*) The position of the occiput. The position of the back, fœtal heart sounds and limbs, as a guide to the possible existence of a persistent occipito-posterior.

3. *Vaginal Examination.*—(*a*) The presence or absence of lacerations, bruising, and œdema of the perineum, vulva, and vagina. (*b*) When the head is in the cavity, the position of the occiput, as determined by passing the whole hand into the vagina, and the presence or absence of a contraction ring round the child's neck. (*c*) The possible existence of a tumour in the pelvis, bulging forwards the posterior vaginal wall and preventing descent of the head.

The *Common Causes of failed forceps are:* (1) Unrotated or partially rotated occipito-posterior positions of the vertex; (2) a contraction ring round the neck of the child; (3) pelvic tumours; (4) a contracted pelvis: head at the brim, flat pelvis; head in the cavity, generally contracted pelvis. The investigation outlined above not only permits the diagnosis (1) to (4) to be made, but supplies the data which determine the different alternative treatments.

## "OCCIPITO-POSTERIOR" CASES.

Third and fourth vertex positions frequently cause much trouble in labour, and when the forceps are applied in cases of absent or incomplete rotation slipping usually occurs. If the occiput is directed

towards one or other sacro-iliac joint, one blade of the forceps comes to rest over the anterior eye, the other blade behind the opposite ear. Slipping is the natural result. The first forceps delivery seen by the writer was in such a case and resulted in evulsion of one eye, and the baby was born alive. When the occiput has incompletely rotated forwards so that it faces the side wall of the pelvis, the grip of the blades is again bad, one being over the occiput and the other over the forehead, and slipping is likely to occur. Moreover forceps traction in such cases is an attempt to pull the occipito-frontal diameter of 4½ in. through the transverse diameter of the pelvic outlet, which is only 4 in. In such cases forward manual rotation of the occiput one-quarter of a circle allows the blades a correct grip and results in an easy extraction as the presenting diameter is then in the widest diameter of the outlet—the antero-posterior of 4½ in.

If the occiput has rotated backwards into the hollow of the sacrum, a good grip may be obtained with the forceps and strong traction may effect delivery, but practically always at the expense of the posterior vaginal wall and perineum, the latter being frequently torn into the rectum. The consultant is frequently asked whether induction of premature labour should be performed in a particular case, because the last labour was a difficult forceps delivery and ended in a badly torn perineum and an asphyxiated baby. Often in such cases the pelvis is found to be normal in size, and there is no obvious cause for the former difficult labour. The explanation is often an unrecognised occipito-posterior vertex delivered face to pubes. In the next labour the baby may arrive before the doctor. Again he is sometimes asked to perforate because prolonged traction fails to deliver the baby, though the head is almost on the perineum; yet in such cases forward rotation of the occiput one-quarter of a circle, for the reasons already given, often allows an easy extraction of a living child. If the doctor has already told the relatives that the child is dead and must be perforated, the extraction of a living child may create an awkward situation.

Failure to recognise a case of backward rotation, non-rotation, or incomplete rotation in a third or fourth vertex—with the results given—is very easily understood. The delay is thought to be the result of disproportion between the head and the pelvis. This it is, but it is a disproportion due entirely to the position and not to the size of the head. The latter is descending midway between flexion and extension, and the occipito-frontal diameter of 4½ in. (circumference 14 in.) is distending the vagina, whereas in the well-flexed vertex which develops in first and second positions, the descending diameter is the sub-occipito bregmatic of 3¾ in. (circumference 12 in.).

If (as so often happens) the membranes rupture early and the uterus becomes closely applied to the child, or if the patient is very fat or nervous, the practitioner may not make out satisfactorily the position of the back, limbs, and fœtal heart. Later, on vaginal examination, a large caput may obscure or render difficult the palpation of sutures and fontanelles, so that when delay in the second stage occurs, in spite of strong pains and a head low in the pelvis, the diagnosis of moderate disproportion is made and consequently the forceps applied. The slipping of the blades, the abnormal length of the perineum, and the commencing rupture of the latter before even the vulva is distended by the head should provide ample warning in time to correct the diagnosis, rotate the occiput forwards, and so prevent a catastrophe.

In all such cases, after removal of the blades, it is wise to pass the whole hand into the vagina and over the fœtal head until the face or neck are reached, locating exactly the position of the occiput. Then, when the head is pushed up sufficiently to allow it to be grasped and to disengage the anterior shoulder from the pelvic brim, the back of the child should be pushed over to the opposite side of the uterus by the hand manipulating the abdomen, while the other hand in the vagina rotates the occiput to the front. If rotation of the shoulder and back is successfully accomplished the occiput remains in its forward position and the re-application of the forceps and the extraction are usually easy. Occasionally it is impossible to push up, rotate, or pull out the head. In these cases, fortunately not common, the forceps can be left on, and the perforator passed between the blades, after which extraction may be possible without recourse to the cranioclast.

### CONTRACTION RING.

Exactly why the uterine muscle should develop a condition of local spasm we do not know, but such a contraction ring round the child's neck probably causes failure in forceps delivery more often than we suspect. The circumstances, however, are so typical that the cause can usually be suspected at once. The practitioner, in fact, is usually sorely puzzled because he cannot deliver, and yet can find no obvious explanation. The condition of the patient is usually good, the pelvic measurements may be normal, the head not unduly large, even in the pelvic cavity. There is no pelvic tumour. Even the occiput is anterior and the forceps are applied easily and grip well; yet the head cannot be extracted and the little advantage gained by traction is lost when the pull is discontinued. There is usually a history of early rupture of the membranes, and a rather protracted labour with many examinations and possibly some obstetric manipulation. The diagnosis can only be made with certainty by introducing the whole hand into the vagina and feeling the tight ring of muscle round the child.

*Treatment.*—The natural temptation to stretch the ring with the fingers should never be indulged, as it invariably increases the spasm. Early cases in which the child is alive should be treated by repeated small doses of morphia. Then after 12 to 24 hours, if the patient is deeply anæsthetised, delivery by forceps can usually be effected.

In late cases the child is dead and Cæsarean section is contra-indicated unless other procedures, less dangerous to the mother, fail. The head should be perforated and the cranioclast applied, a weight of 7 lb. being attached to the handle and left hanging over the bed. Steady weight traction usually succeeds in the end, but the writer can recollect one case in which it failed, and on opening the abdomen the ring round the child's neck was so tight that it appeared quite anæmic, and required incision before the mother could be delivered.

### PELVIC TUMOURS.

Pelvic tumours complicating labour are not common, but when present they are often overlooked, with the result that attempts are made to drag the child past a fibroid or ovarian cyst, with serious consequences. Fibroids, unless cervical, rarely prevent the head from descending. Even lower segment fibroids, unless large and low down, usually undergo softening and flattening, and, as labour advances, are drawn up out of the way. Ovarian cysts, especially dermoids about the size of an orange or less, lie in Douglas's pouch, symptomless and unsuspected for years until pregnancy or labour lead to their discovery.

*Treatment.*—Forceps, version, and craniotomy play no part in the treatment of tumours complicating labour. No attempt should ever be made to drag a child past a fibroid or ovarian cyst, either by its feet or its head, before or after perforation. Such attempts are fraught with great danger to the mother, and, apart from the effect on the tumour, are likely to produce serious injuries to the genital canal. Injured fibroids frequently become infected in the puerperium, and infected fibroids are very deadly. Most of the deaths in cases of fibroids complicating childbirth are the result of infection of these tumours after delivery. In the same way an ovarian cyst is likely to rupture if a child is dragged past it. The contents of the cyst escape into the peritoneal cavity, the result depending on the nature of the cyst. The difficulties of the ovariotomy, which must subsequently be performed, are considerably increased by the occurrence of this accident. When the obstructing tumour is a fibroid Cæsarean section should be performed, either alone

or followed by myomectomy or hysterectomy, according to the indications for each. If the tumour is ovarian it is better to avoid incision of the uterus, if possible. Cæsarean section exposes these patients to the very definite risk of rupture of the scar in subsequent natural labours, or to the alternative risk of repeated Cæsarean sections. If interference is delayed until the os is fully, or nearly fully, dilated, the ovarian cyst can be removed after opening the abdomen, an assistant delivering with forceps before the abdominal wound is closed. If the tumour cannot be removed, even after eventrating the uterus, the latter may require incision before the cyst can be withdrawn from the pelvis, where it is imprisoned by the head pressing the pedicle against the promontory or lateral pelvic wall, but it is always better to avoid Cæsarean section if possible.

### DISPROPORTION BETWEEN THE HEAD AND THE PELVIS.

The first essential in these cases is to decide whether the pelvis is too small to allow extraction of a craniotomised child without great risk to the mother. At Queen Charlotte's Hospital an internal conjugate of less than 3 in. and a transverse diameter at the brim of less than 3½ in. are considered the minimum measurements which allow delivery of a destroyed child without great risk to the mother. In such cases Cæsarean section with or without hysterectomy is the only rational treatment. With measurements greater than these there are four possible alternatives after failure of the forceps to effect delivery: (1) pubiotomy; (2) internal version; (3) Cæsarean section; (4) craniotomy.

*Pubiotomy.*—This operation is very rarely performed by English obstetricians, and has given such disappointing results in this country that it has been abandoned and can be said to play no part in our practice of midwifery. Continental and American writers have published series of cases with good results. The operation is essentially one for the expert. There is a definite risk of injury to the bladder and soft parts, it amounts to the production of a compound fracture in a presumably septic area, and it is an operation thoroughly unsuitable for recommendation in general practice.

*Version.*—Internal version, on the other hand, is a practical and popular obstetric procedure, though of somewhat limited application.

It is likely to prove successful if the following conditions obtain: 1. An internal conjugate of not less than 3½ in. with an average-sized head. 2. A flaccid uterus not thinned or moulded to the child, so allowing version to be performed without risk of rupture of the uterus. 3. The head above the pelvic brim, or if in the brim able to be pushed up without undue application of force. 4. It is especially of value in cases of unfavourable vertex presentation at the brim—i.e., a brow, or a posterior parietal presentation in which the anterior parietal bone overlaps the symphysis and the sagittal suture remains near the symphysis pubis. In such cases it is more than likely that internal version will cause to engage in the pelvic brim a smaller and more favourable diameter of the after-coming head.

After bringing down the arms the anterior shoulder should be kept under the symphysis and the head pushed through the brim by strong fundal pressure. This promotes a certain degree of flexion and ensures the long diameter of the fœtal head (the occipito-frontal of 4½) engaging in and passing through the longest diameter of the brim (the transverse of 5 in.), while the narrowest transverse diameter of the head (the bi-temporal of 3½ in.) passes through the narrowest diameter of the brim—i.e., the internal conjugate, the wider bi-parietal diameter being in the roomy lateral part of the pelvis. When the head has passed the brim the child is rotated so as to bring the nape of the neck under the symphysis, and the head is then easily delivered by jaw and shoulder traction. It should be remembered that extraction as a breech has many disadvantages both for the mother and the child, especially the risk of injury and asphyxia of the child, and the likelihood of a severe rupture of the perineum in bringing down the arms, but it has one very great advantage—namely, that should it be impossible to push the after-coming head through the brim, perforation and extraction of the head in this position is an easier and safer operation than perforation and extraction of a fore-coming head floating above the brim.

*Internal Version with the Head in the Cavity.*

When forceps fail to deliver a head in the pelvic cavity, it is doubtful whether any advantage is to be gained by version, while in many cases in which the head cannot be pushed up easily the practice is fraught with considerable danger, especially the risk of rupture of the uterus, the uterus being pushed off the vagina. In the absence of general contraction, it is often of greater advantage to rotate the head into a larger and more favourable diameter for extraction, and then to re-apply the forceps, when delivery will often follow. If the pelvis is generally contracted, especially in the funnel-shaped masculine type of pelvis, internal version is a distinct disadvantage. Here the pelvic diameters diminish from above downwards and strong pains drive the head into the funnel, promoting strong flexion, which is increased by traction with forceps. On the other hand, the descent of the after-coming head through such a pelvis is certain to result in extension of the head and elevation of the chin. If the perfectly flexed fore-coming head cannot be extracted by strong forceps traction, how much more unlikely of success is the extraction of the extended after-coming head.

### CÆSAREAN SECTION AND PERFORATION.

In extreme degrees of pelvic contraction Cæsarean section is the only rational treatment, irrespective of the duration of labour. Similarly in moderate degrees of contraction when the child is dead, perforation is recognised as the correct treatment if forceps fail and version is contra-indicated.

But in cases of *moderate* contraction, in which forceps have failed and the child is still alive, there is a choice between Cæsarean section and perforation of the living child. There is a growing tendency to extend the scope of Cæsarean section to these cases, irrespective of the greatly added risk to the mother. Indeed, one is frequently asked nowadays whether it is ever justifiable to sacrifice a living child. This question can only be answered after comparing the maternal mortality and morbidity rates of Cæsarean section and craniotomy.

The operation of Cæsarean section performed before rupture of the membranes, in ideal surroundings with a strict surgical aseptic technique and by surgeons accustomed to abdominal operations, is such a safe operation, so simple to perform, and gives such excellent results, that there is an increasing danger of the operation being extended to unsuitable cases, after rupture of the membranes, where the surroundings are not ideal and the best technique is not obtainable. In these cases the results are extremely bad. Amand Routh's series of analysed cases deals with the Cæsarean sections in this country from 1891–1910, while Holland and Kerr's collected cases (over 4000 in number) analyse the Cæsarean sections performed in the leading hospitals of the British Isles from 1911–20. In Routh's[4] series the maternal mortality in cases operated upon before rupture of the membranes was 2·9 per cent., while in cases operated upon after rupture of the membranes it was 10·8–34·3 per cent., the higher figure of 34·3 per cent. corresponding to those cases in which many examinations or attempts at delivery had been made. In Holland and Kerr's[5] series the maternal mortality was 1·6 per cent. in cases of operation before rupture of the membranes, and 10–27 per cent. in cases after rupture of the membranes; again, the higher figure referring to later cases, in which forceps had been attempted and in which bruising, œdema, and laceration of the genital canal were stated or assumed to be present.

These figures, representing as they do the collective results of the most experienced surgeons in the British Isles working in large hospitals and under ideal conditions, must, of necessity, carry tremendous weight, and should exercise a real influence on teaching and practice in regard to this operation. The figures show: (1) That in cases of operation at the time of election there is a definite mortality-rate between 1·5 and 2 per cent.—a small but a definite and probably an irreducible minimum rate. (2) That Cæsarean section performed late in labour has a minimum mortality of 10 per cent. and a maximum of 27 per cent. under the *best* available conditions. These deaths are chiefly from septic complications: peritonitis, septicæmia, pyæmia, pulmonary embolism, &c. In addition there is a heavy morbidity-rate in surviving patients due to chronic pain from adhesions, intestinal obstruction from adhesion of small intestine to the uterine stitch line, white leg, utero-abdominal fistulæ (through which menstrual fluid may escape), and many other conditions.

The enthusiasts for Cæsarean section reply that the results of craniotomy are equally bad. *This is not true*, and the mortality from this operation would be even less if obstetricians took the pains to perfect themselves in a truly obstetric procedure rather than give way to the temptation to perform a more showy operation irrespective of the greatly added risks to the mother. In 100 cases of craniotomy at Queen Charlotte's Hospital analysed by the author there were only eight deaths, and it must be remembered that most of these perforations were in grave cases, sent in from surrounding districts, after ineffectual attempts at delivery, cases in which œdema, bruising, and laceration of the genital canal were present, and sometimes even established infection with ante-partum pyrexia and discharge. In these cases the mortality of Cæsarean section is not 8 per cent. but 27 per cent. In Shauta's[3] analysis of 50,000 labours, with nearly 5000 cases of contracted pelvis, there were 82 craniotomies on dead babies with only five deaths—i.e., 6 per cent.—and 76 craniotomies on living children with only one death—i.e., 1·3 per cent.—the lower figure in the latter series being readily understood, as the factors which predispose to septic complications are less likely to be present when the child is alive and less damage has been done to the mother.

It is sometimes stated that the risks of sepsis in late cases of Cæsarean section are exaggerated, but it is unreasonable to disregard figures such as those here quoted, and especially in regard to this matter does a grave responsibility rest upon the shoulders of teachers of obstetrics. If, therefore, in a case of moderate disproportion some error of judgment has been made, which results in failure of forceps to effect delivery, is it not incumbent upon the practitioner to perforate the living child rather than subject the mother to a death risk of 10–27 per cent? Even if the fœtal heart is still audible the child cannot be reasonably expected to live in a great many cases after a long and steady pull with forceps. The attitude of the husband in these cases is the correct one. "Save my wife, never mind the baby," is the universal reply *if an unprejudiced case is presented to him*. He, at any rate, is able to estimate correctly the relative values of the two lives.

Sir George Blacker[1] states that

> the majority of obstetricians of experience hold strongly to the view that it is rarely if ever justifiable to subject the mother to a grave risk in order to save the life of a child. Naturally it is a very repugnant action to have to perforate a living child, but to pretend that craniotomy can be replaced by symphysiotomy or Cæsarean section without much greater danger to the mother is to shut one's eyes to the truth.

In most of these cases the mother is young and when she conceives again can have induction of labour at about the 36th week (maternal mortality-rate 0·2 per cent.) or Cæsarean section just before term (maternal mortality 1·6 per cent.). Every obstetrician of experience has had cases in which cranioclasm has been followed in a subsequent pregnancy by induction of labour or Cæsarean section with little risk and excellent results. It is sometimes maintained that modifications in the technique of Cæsarean section may, or do, greatly diminish the maternal mortality in operations performed late in labour. But it has not yet been proved that there is sufficient reduction in that rate to justify substitution of these operations for craniotomy. Both the extra-peritoneal operation and incision of the lower segment are more difficult to perform, there is more risk of injury to the bladder, and infection of the uterine incision in the lower segment operation would seem more likely.

Cæsarean hysterectomy is an operation with a high mortality rate, and it cannot be usually justifiable to perform an operation of this character on a young woman for the sake of a very doubtful fœtal life, when the sacrifice of that baby will enable her to retain the uterus and bear children in the future under better circumstances with much less risk. The degree of infection in cases considered suitable for Cæsarean hysterectomy is always doubtful, and the majority of the mild cases of uterine infection recover if the child is extracted per vaginam. Bar's[2] eventration operation is probably the most promising of these modified operations and, in my own cases up to the present, has given a mortality of only 5 per cent.

The important distinguishing details of the operation are as follows. The abdominal incision is made long enough to enable the uterus containing the child to be eventrated. The edges of the wound are temporarily clipped together as far as possible behind the uterus, and sterile towels placed between the uterus and the abdominal wound, so as to completely exclude the peritoneal cavity from the area of operation. The uterus is then incised and the child removed. The placenta and membranes are peeled off, and large swabs or rolls of gauze half wrung out in 1 per cent. violet green, 1-1000 flavine, or strong milton, are placed in the uterus, and the latter is tightly squeezed around them for several minutes, thus attempting to sterilise the newly created raw surface made by removal of the placenta and membranes. The gauze is then removed and the uterine incision closed and the outer surface of the uterus washed over with violet green or flavine. Then the towels around and behind the uterus are removed, a new gown and gloves are put on, a fresh set of instruments is taken, and fresh sterile towels are placed over the abdomen and around the abdominal wound. The uterus is then replaced in the abdominal cavity and the abdomen closed in layers. In this way contamination of the peritoneal cavity is prevented as no uterine contents escape into it, and also a definite attempt is made to render the interior of the uterus sterile.

In presumably infected cases the operation gives very good results, but a sufficient number of cases has not yet been published to justify the extended use of the operation as an alternative to craniotomy, though it is probably the best of the modified methods of Cæsarean section for septic cases.

With regard to the technique of cranioclasm itself, there are a few important points in technique which make for success and which are not usually emphasised. After perforating the skull it is important to break up the septa at the base of the brain, so as to allow the solid blade to be passed right down to the medulla. This blade should be passed with the rough surface towards the face. The hollow blade is then passed right over the face, and if the solid blade has been passed down to the medulla, locking will be effected with the hollow blade over the face, a good grip is obtained on screwing up the handles, and an easy extraction by traction alone follows. It is rarely necessary to remove separately the bones of the vault. If the solid blade is not pushed well home, locking is secured with the hollow blade over the forehead and not the face. On tightening the screws only the frontal bones and scalp are included between the blades and slipping is inevitable. The three-bladed cranioclast, though not in common use, has a great advantage over the two-bladed instrument in difficult cases and is invariably used at Queen Charlotte's Hospital.

### PREVENTION OF FAILED FORCEPS AND DIFFICULT FORCEPS.

*Induction of Labour and Trial Labour.*—Difficult and unsuccessful forceps deliveries are usually preventable by antenatal supervision, ending in induction of labour at some time between the 36th and 38th week of gestation. From 1908–17 434 cases were induced at Queen Charlotte's Hospital. There was only one maternal death (0·23 per cent.), and 340 of these were delivered spontaneously with a fœtal and neonatal mortality of 37 (10·8 per cent.). Ninety-four were delivered by forceps with a mortality of 17 per cent. The following table shows the cases analysed :—

| Period of gestation. (weeks) | No. of cases* | Fœtal and neonatal deaths | Percentage | Period of gestation. (weeks) | No. of cases.* | Fœtal and neonatal deaths | Percentage |
|---|---|---|---|---|---|---|---|
| 40 | 120 | 19 | 15·8 | 34 | 12 | 5 | 41·6 |
| 39 | 52 | 6 | 11·5 | 32 | 4 | 2 | 50·0 |
| 38 | 132 | 9 | 6·8 | 30 | 2 | 0 | — |
| 37 | 47 | 5 | 10·6 | 28 | 1 | 0 | — |
| 36 | 59 | 9 | 15·3 | 24 | 1 | 1 | 100·0 |
| 35 | 4 | 2 | 50·0 | | | | |

* In the last five years over 100 inductions per year have been carried out at Queen Charlotte's Hospital.*

The fœtal and neonatal mortality for the whole series was 13·3 per cent. For the cases from 36–40 weeks it was 11·7 per cent. The higher mortality during the 39th and 40th weeks was probably due to some of these cases being left a little too long. The table shows the high mortality of induction before the 36th week, and the great value of this operation from the 36th–38th week. The majority of the cases of contracted pelvis encountered in the South of England are of the moderate kind, rarely needing Cæsarean section, but frequently ending in difficult forceps and death of the child, and sometimes in failed forceps and perforation. It is just this type of case which is so amenable to treatment by induction between the 36th and 38th week. Earlier than the 36th week the children usually weigh under 5 lb. They are reared with difficulty and often fail to stand the stress of labour. If in a case of disproportion examined at or before the 36th week the head cannot be pushed into the brim, Cæsarean section at term is indicated. If the head at the 36th week can just be pushed into the brim with great difficulty, induction of labour should be performed within a few days. If at the 36th week the head pushes in easily, weekly repetitions of the test should be carried out, induction being performed when the head can just be pushed in with difficulty; the case never being allowed to pass beyond the 40th week. If a patient is to be seen once only in the antenatal period, let it be in the 36th week. These principles in estimating the time for induction are followed religiously at Queen Charlotte's Hospital, where the medical staff is convinced of their great value in the prevention of difficult forceps deliveries, stillbirths, and perforations in labour.

*The Trial Labour.*—The difficult cases are those seen for the first time at or near term, in which the obstetrician cannot be sure whether the head will pass through the brim, even after repetition of the test under anæsthesia. Although midwifery is an exact science, the human element involved in matters of judgment renders inevitable occasional mistakes, so that the most experienced accoucheur may be ultimately faced with a difficult forceps or a perforation, in spite of antenatal supervision. It is in these doubtful cases that trial labour has such a great value; not a trial of nature *à outrance*, where perforation is permissible in the end, and the trial is for future guidance—i.e., our conduct in the next labour—but a trial of spontaneous labour against Cæsarean section, a trial in which perforation is a mark of failure, and even forceps is avoided if possible.

In such a case the decision must be made as early as possible after rupture of the membranes, because the risks of Cæsarean section increase rapidly after that event. Valuable information can be obtained by repeated abdominal examinations of the head at the pelvic brim as labour advances. In favourable cases flexion and fixation of the head in the brim are followed by disappearance of the overlap at the symphysis pubis, and finally by inability to feel the cephalic prominence per abdomen. When these signs occur in succession, the case can be left alone and at most will need a medium or easy low forceps. In unfavourable cases the membranes rupture early, the cervix dilates slowly, the pains are weak, and descent, fixation, and disappearance of the overlap fail to occur or are delayed too long. Sometimes prolapse of the cord occurs, making an immediate decision necessary.

If Cæsarean section is performed in such a trial labour where an aseptic technique has been followed, few vaginal examinations and no attempts at delivery made, and in which bruising, œdema, and laceration of the genital canal are absent, the risk of the operation is little greater than that at the time of election. It is best to exclude high forceps entirely from such a trial labour, but should the practitioner be tempted to apply them, the head being jammed in the brim and the os fully dilated, great care should be taken to apply them carefully and to pull tentatively and steadily for not more than 15 minutes. Then if no marked progress has been made, it is wiser to remove the forceps without injury to the genital canal and to consider the question of Cæsarean section before it is too late. At such a stage the baby might be reasonably expected to live, and the risks of Cæsarean section, though definite, are not prohibitive, but if, as so often happens, anæsthetist and accoucheur exchange tasks, and repeated prolonged and unsuccessful attempts at forceps delivery are made, the child's life is a poor risk, the genital canal is bruised, lacerated, and possibly definitely infected, and the risks of Cæsarean section to the mother are so great as to contra-indicate entirely that operation.

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## THE DIFFERENTIATION OF FOOD-POISONING BACTERIA.


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DURING the last few years considerable attention has been directed to the causation of outbreaks of food poisoning. Apart from those due to *B. botulinus*, others caused by members of the Salmonella group occur from time to time. Burgess [1] has recently described an extensive outbreak of 703 known cases due to *B. aertrycke*. Of recent years, apart from the work of Andrewes,[2 3] Schutze,[4 5] Topley,[6] and that of Savage and Bruce-White,[7] all of which deals essentially with the serological aspect of the subject, not much has been added to our knowledge which will help the worker in smaller laboratories to differentiate the members of this perplexing group of organisms. Savage [8] refers to these organisms as being nearly indistinguishable culturally and morphologically from one another, and says that they constitute a kind of no-man's land which needs exploration urgently. He further says: "I feel that much value to public health and epidemiology would accrue if this neglected field was more thoroughly surveyed."

*Failure of Sugars to Differentiate.*

Now when the worker in the smaller laboratories is faced with an investigation into one of these outbreaks it is essential for him to be certain that the abnormal flora in the patient's dejecta are identical with those in the articles of food causing the outbreak. If he is in possession of mono-specific sera advocated by Andrewes [3] he will have no difficulty in proving the identity of organisms from these two sources, but if he does not happen to have these sera he will have to rely on cultural characteristics. Here the "sugars" will help him, but only up to a certain point, and even with the rarer compounds, such as inositol, he will not be able to differentiate many members of the Salmonella group.

It is where the "sugars" fall short in this differentiation that we would urge the employment of certain organic salts for this purpose. It has been shown that with the "sugars" the Salmonellas (*B. paratyphosus* A included) can be differentiated into four groups, and that by the study of the fermentation of certain organic salts [9] seven groupings can be obtained, and by means of both sugars and organic salt reactions a total of eight groupings is possible.

*The Help of Salts of Organic Acids.*

The salts which we have found most useful in differentiating the Salmonellas are: the sodium salts of citric, *d*-tartaric, *l*-tartaric, *m*-tartaric, fumaric, and mucic acids. These are employed in a peptone water medium in a concentration of 1 per cent., and they are not materially affected by sterilisation in the autoclave. The cultures in the salt media are incubated at 37° C. for 48 hours, and decomposition of the salt is then investigated by adding a sufficient quantity of a soluble lead salt; 0·6 c.cm. of a saturated solution of lead acetate to every 5·0 c.cm. of the tartrate medium, or 0·5 c.cm. to a similar quantity of the citrate medium. All of the acids mentioned yield insoluble lead salts, and, with the exception of fumaric and mucic acids, the precipitate caused by the addition of lead acetate is bulky and tends to remain in suspension, forming a white flocculent column. Decomposition of the salt is evidenced, on adding the precipitant, by the formation of a slight granular greyish-white precipitate composed chiefly of lead carbonate, which sinks rapidly to the bottom of the tube.

In the case of fumaric acid the lead salt forms a slight heavy precipitate, quite unlike the light voluminous precipitates given by the other acids. Sodium fumarate, however, is very readily acted upon by all members of the Salmonella group, and the earliest results of this action are the formation of small quantities of sodium carbonate and sodium succinate, in the presence of either or of both of which lead fumarate forms a bulky precipitate like that of lead citrate or tartrate. *B. paratyphosus* A and *B. paratyphosus* C do not carry the decomposition of fumarate beyond this stage, but all the other Salmonellas complete the decomposition of the fumarate and succinate, leaving only a residue of carbonate. It has been found desirable to extend the incubation period to 96 hours, in the case of this salt, in order to allow for its slower decomposition.

In the case of mucic acid, precipitation by lead also yields a small heavy precipitate which, however, may readily be distinguished from the lead carbonate, in the tubes in which decomposition of the salt has occurred, by adding a little acetic acid, which will dissolve lead carbonate but not lead mucate.

*Results up to Date.*

For a more detailed account of the technique of these tests, the reader is referred to our previous paper.[9] Since this paper was published we have had the opportunity, thanks to the kindness of Mr. Bruce-White, of further studying the action of eight more strains of bacteria, all isolated from cases of food poisoning on the organic salts. In the case of each organism the result of the action on the organic salts was directly correlated with the serological findings obtained by Mr. Bruce-White, and it is interesting to note that three strains of the newly described Derby type and the single strain Dar-es-Salaam stand out from the other Salmonellas, both in their action on the organic salts and in their serum reactions. Altogether we have studied the action of a total of 78 strains of the various Salmonellas, and in every instance the nine groupings which we have arrived at have been clearly differentiated one from another.

The following table illustrates the actions of the various Salmonellas on the six salts selected. A − sign indicates that the salt is unaffected, and a + sign that complete decomposition has occurred.

| — | Citrate. | *d*-tartrate. | *l*-tartrate. | *m*-tartrate. | Fumarate. | Mucate. |
|---|---|---|---|---|---|---|
| *B. paratyphosus* A.. .. | − | − | − | − | − | − |
| *B. paratyphosus* B.. .. | + | − | + | − | − | + |
| *B. paratyphosus* C.. .. | + | + | − | + | − | − |
| *B. suipestifer* .. .. | + | + | − | + | + | − |
| Salmonella type "G" .. | + | + | − | + | + | − |
| Type Reading .. .. | + | + | − | + | + | + |
| Type Mutton .. .. | + | + | + | + | + | + |
| Type Newport .. .. | + | + | + | + | + | + |
| Type Binns .. .. | + | + | + | + | + | + |
| Type Stanley .. .. | + | + | + | − | + | + |
| Dar-es-Salaam, Bruce-White Type Derby .. .. | + | − | − | − | + | + |
| *B. enteritidis* Gärtner .. | + | + | + | + | − | + |
| | + | ± | ± | ± | + | + |

The only member of the Salmonella group which has given inconstant results with the organic salts is *B. enteritidis* Gärtner. Here, although the various strains have apparently been identical from a morphological and serological aspect, the activity with which they attacked the organic salts has been very irregular.

In our previous paper [9] we indicated the possibility of distinguishing *V. choleræ* from other vibrios by means of salt fermentations. This assumption was based on the results of tests carried out with the few strains of vibrios available at the time. On a more extended investigation, made possible through the kindness of Dr. R. St. John-Brooks, who supplied us with a large number of strains of *V. choleræ* and cholera-like vibrios, we have been unable to confirm our previous opinion; some of the cholera-like vibrios behaving like the true *V. choleræ* in their fermentations.

In conclusion we would urge the use of these salts of organic acids as offering the most valuable of the biochemical means of differentiating the various members of the important Salmonella group.

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RESIGNATION OF JOHANNESBURG M.O.H.—The resignation of Dr. Charles Porter, medical officer of health for Johannesburg for 23 years, has produced warm tributes from the Pietermaritzburg Congress and in the South African press. After holding various public health appointments in England, including that of county medical officer for Shropshire, Dr. Porter went to Johannesburg under the régime of Lord Milner, and on the understanding that his appointment should be on the same terms of tenure as those obtaining in England. This proviso was the cause of adverse criticism, but allowed him to carry through the work he began. The *Rand Daily Mail*, in reviewing his achievements, draws attention to the fact that he came to the city at a time when nearly everything coming within the scope of a public health department in a well-ordered community had yet to be done, whilst he relinquishes office in the assurance that all those services are in a thoroughly satisfactory condition, and that Johannesburg is now one of the healthiest cities in the world. During the past 20 years the white death-rate has declined by 31 per cent. and the incidence of enteric by 87 per cent.

# AN ANALYSIS OF FOUR HUNDRED CONSECUTIVE CASES OF GONORRHŒA IN THE MALE.

INVESTIGATED AND TREATED IN THE VENEREAL SECTION OF THE GENITO-URINARY DEPARTMENT OF THE LONDON HOSPITAL.

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THE present article deals with 400 consecutive cases of gonorrhœa in the male treated at the London Hospital Venereal Clinic. The authors hope that the following data and deductions may prove to be of interest and use from a clinical, administrative, and sociological standpoint. We must emphasise the fact that no attempt has been made in this clinic to achieve time records. We are conscious that in respect to the length of time taken to produce a cure our statistics will not compete with many other records, and we would here utter a note of protest against the increasing tendency to estimate results by an appeal to a mere numerical standard.

In this analysis, only those cases in which gonococci were found in the urethral film have been included.* Another feature which tends to reduce the number of cases considered is that only those patients who were officially discharged as cured enter into this calculation.

### *Routine Treatment.*

On the patient presenting himself for treatment the usual clinical history is taken—i.e., the date of exposure to infection, the date of onset of discharge, and enumeration of previous attacks. A urethral smear is then taken of which a microscopic and bacteriological examination is made. The anterior urethra is washed out with oxycyanide of mercury 1/5000, by Janet's method, and the patient is called upon to pass his urine. A rectal examination is made and the condition of the prostate and vesicles noted. The testes and epididymes are also palpated. The patient is urged to attend daily for irrigation and as required for prostatic and vesicular massage and urethroscopic examination and treatment. If he cannot come up for irrigation he is supplied with a syringe, with potassium permanganate solution of the requisite strength, and a leaflet with instructions and rules.

### *The Marriage Test.*

When all clinical symptoms have subsided, and an examination by the urethroscope has failed to reveal the presence of follicles or infiltrations, and a smear testifies to the normal condition of prostate and vesicles, then after all treatment has been suspended for one week the patient is subjected to the "marriage tests." These are carried out after one week has elapsed between the last treatment and the first test. They are three in number performed at weekly intervals (the patient meanwhile taking a little alcohol or receiving other provocative treatment).

Each marriage test involves a microscopic and bacteriological examination of urine and urinary deposit, a thread film and culture, a prostatico-vesicular film and culture, and vesicular contents per se when necessary. Only patients on whom three of these examinations have been made and have proved to be negative are passed as cured.

At first sight the number of patients remaining until formally discharged would seem disproportionately small—viz., 138 out of 400. But, owing to our proximity to the docks a substantial proportion of the patients are either seafaring men or engaged in casual labour at varying hours, for whom regular attendance during a number of weeks is impossible. Another class, largely represented in the clinic, is drawn from the alien population of the East End of London. Here again regular attendance at the clinic within specified hours on two days a week—when the clinic (apart from the irrigation department) is open—presents a difficulty which many patients fail to surmount. Hence their failure to attend for final tests, &c., when a cessation of signs and symptoms satisfies them that they are cured. It is obvious that a clinic in the densely populated area of East London cannot function as it should without being open on every day of the week.

### *Clinical Data as to Gonorrhœa.*

First attack, 294; second or more, 106.

*Proportion of Previous Attacks.*—It is a noticeable fact that of the 400 cases under consideration 106, or about one-fourth of the total number, had suffered from gonorrhœa on a previous occasion. When the fact is realised that most of the patients were under the age of 30, the proportions observed are even of greater interest, as showing that fear has no great power as a deterrent to exposure to infection.

### *Age of Patients.*

| Under 20. | 20–25. | 25–30. | 30–35. | Over 35. |
|---|---|---|---|---|
| 28 (7%) | 147 (36¾%) | 119 (29¾%) | 55 (13¾%) | 51 (12¾%) |

The conclusions arrived at after consideration of this table are: 1. That the years 20–25 appear to be the time of greatest danger. 2. That from 25–30 there is a marked reduction, to some extent due to marriage, possibly accounted for by increased prophylactic experience. 3. It is surprising that the percentage of patients under 20 years of age is so small, for it is in direct opposition to what one would expect. This figure must not be taken as forming an index of the extent of promiscuous intercourse which occurs under that age.

### *Influence of Alcohol.*

| Drunk. | In liquor. | Sober. |
|---|---|---|
| 51 (12¾%) | 34 (8½%) | 35 (7¾%) |

The attempt to correlate alcoholic indulgence with the incidence of venereal disease is extremely difficult. The terms "drunk," "in liquor," "sober" are extremely relative; some patients will advance "drunkenness" as an ethical excuse when no intoxication probably existed. Others, disliking the additional stigma of drunkenness, will deny a fact. If it were possible to obtain absolutely reliable data as to the condition of patients in respect to alcohol at the time of infection, valuable and suggestive results might be obtained as regards the correlation of alcohol to (*a*) the incubation period; (*b*) severity of the attack; (*c*) the extent of the time in terms of implication of the anterior and posterior urethra, and of the incidence of complications such as epididymitis, vesiculitis, and metastatic gonorrhœa.

### *Sources of Infection.*

| Prostitutes. | Amateurs. | Marital. |
|---|---|---|
| 252 (63%) | 107 (26¾%) | 41 (10¼%) |

In taking the clinical history the patient was always questioned as to the source of the infection; 41, or 10¼ per cent., denied conjugal incontinence, implying that the infection contracted was of marital origin; a card for the women's department was always given to be handed to the wife in these cases, and it is gratifying to report that most of the women came up to the department. 107, or 26¾ per cent., stated that they contracted gonorrhœa from women who were not prostitutes—i.e., women to whom no payment was made; 252, or 63 per cent., admitted associating with prostitutes. It will be noted that infection from prostitutes amounted to almost two-thirds of the total cases.

### *Incubation Period.*

| Days— 2 | 3 | 4 | 5 | 6 | 7 | 8 | over 8 |
|---|---|---|---|---|---|---|---|
| 52 (13%) | 69 (17¼%) | 57 (14¼%) | 52 (13%) | 37 (9¼%) | 56 (14%) | 14 (3½%) | 76 (19%) |

* See page 120, Gonococcal Rheumatism.

It will be seen that there is a wider difference in time in the incubation period than is usually described. Some cases show gonococcal pus in the urethra two days after the infecting coitus, others show no signs until after 14–21 days. The number in the last column is surprisingly high, 19 per cent., so that one is inclined to ask what are the factors which influence the incubation period? Is it the virulence of the organism or the resistance of the patient, or has the actual site of infection any causal relationship to time? Is it possible that there is a relationship between the species of gonococcus implicated and the length of incubation?

Gonococci grown on media in the laboratory under constant conditions do not show these wide variations in time; the inconstant but determining factor would seem to be associated with the patient. It is not the usual practice at the clinic to make urethroscopic examinations until at least three to four weeks have elapsed from the onset of disease. By that time the picture presented is one that gives no indication of the exact site of the entry of infection.

*Cases of Anterior and Posterior Urethritis.*

The total number of cured cases of gonorrhœa were 138 out of 400. The cases which remained anterior—i.e., in which there was no infection of the posterior urethra, as shown by Janet's test and examination of the prostatic bead, and no infection of the vesicles—were 28, or 20 per cent. At first sight the proportion of cases which remained anterior seems low, but these results must not be compared with those that might be obtained in certain spheres of private practice where the patients can be placed in relatively ideal conditions, where they comport themselves with discretion, and carry out the precepts of their doctor with care. In a working-man's clinic, and especially in the neighbourhood of the docks, we find a large number of patients still carrying on heavy manual labour, which, apart from its effects upon the disease, also practically precludes the following out of the strict dietetic régime which is indicated. Their hours of work also prevent them from attending the irrigation room with regularity. Again, consideration has to be given to the question whether the marked indulgence in alcohol, particularly in spirits, which characterises many of the younger patients in this part of London, is not a factor in rendering the posterior urethra more susceptible to an extension of infection.

*Cases of Epididymitis.*

| First attack. | | | | Second or more. | | | |
|---|---|---|---|---|---|---|---|
| Right. | Left. | Both. | Total. | Right. | Left. | Both. | Total. |
| 20 .. | 23 .. | 1 .. | 44 | 11 .. | 7 .. | 2 .. | 20 |

Here we have to note that a very large percentage contracted epididymitis. Many of these cases, however, were already suffering from it when they appeared at the hospital. Of the remainder we must remember that many still continue to carry on their occupations, and those, at times, laborious ones, even when suffering from this complication. Apart from work, the factors of alcoholic indulgence, erotic excitement, and injudicious injections on the part of the patient will probably account for a large percentage.

Three points arise out of the consideration of the foregoing statements:—

1. There should be greater insistence on the necessity of patients immediately seeking adequate medical treatment after the onset of any urethral discharge.

2. That, in the opinion of one of us (E. C.), as soon as epididymitis of gonococcal origin is discovered, irrigations and injections should be reduced to the minimum required for comfort, and here Nature generally helps us by providing that there should be a marked reduction in the amount of discharge. It is better (with the foregoing proviso) that no irrigation should be given until the very acute stage of the epididymitis is passed. Markedly beneficial results have followed the adoption of this policy of abstention.

3. *Epididymitis, Efficiency and Economics.*—We are insistent that it is the duty of the community to provide far greater accommodation for the appropriate treatment of patients suffering from gonococcal epididymitis. In our own clinic we have three beds available for male patients suffering from gonorrhœa, a lamentably inadequate number. Time after time a patient suffering from epididymitis appears, his condition insistently calling for rest, hot fomentations, &c. Our beds are full. The patient lives either in lodgings, where he can get neither rest, baths, fomentations, &c., or in one or two rooms with the rest of his family, and an equal lack of opportunity of obtaining treatment. At times a patient who works by day has only a right to occupy a bed during the night and has to resign occupation in the morning in favour of a night-worker, who is its tenant by day. In some instances he may manage to get into an infirmary. The results of insufficient treatment are an unnecessary continuation of the patient's suffering, a prolongation of danger to the community through his infectivity, with increased expense to the nation owing to his inability to engage in productive work. We would venture to urge, as one of us (E. C.) has frequently done before, that by the help of the Ministry of Health and the County Council a small hostel should be set apart in London (and in other towns where necessary) where such cases can receive adequate treatment. The reduction of suffering, the abbreviation of the period of infection, and the shortening of the period of enforced idleness would afford a triple justification of such a step. And in certain instances patients would be willing to pay a small sum towards the expense of their treatment.

*Cases of Vesiculitis.*

| First attack. | | | | Second or more. | | | |
|---|---|---|---|---|---|---|---|
| Right. | Left. | Both. | Total. | Right. | Left. | Both. | Total. |
| 2 .. | 26 .. | 36 .. | 64 | 10 .. | 16 .. | 13 .. | 39 |

On examining the above figures the reader will probably be impressed by the large number of patients in whom vesiculitis supervened. Personally we do not share this surprise, since, as time goes on, we realise that the incidence of vesiculitis is much greater than is usually recognised. We have no hesitation in stating that in general, when a patient has a chronic discharge which defies the ordinary routine treatment of irrigation and prostatic massage, he is suffering from vesiculitis. Further, we know that patients frequently have been discharged as cured with an infected vesicle, with an intermittently or permanently occluded duct. That this is so frequently the case is not surprising when one considers how greatly a pathological vesicle may vary in respect to size, contour, consistency, &c. So subtle and so difficult of recognition are the features frequently exhibited that it is only possible to give a definite and reliable opinion after very great experience. Special emphasis is laid on the necessity of the most complete vesicular examination. Not only is every patient examined by the clinical assistant in charge of the case, but he is also periodically referred to the director of the department or his deputy, and again when the final tests are in progress. Finally, when regarded as cured, as a result of clinical and bacteriological examination, he is again submitted to a further examination of the vesicles by the director or his representative.

We would here place on record the valuable results which accrue in suspicious cases of vesiculitis by obtaining and examining the vesicular contents apart from that of the prostate. This procedure, which was suggested by the director, Mr. Hugh Lett, has been successfully practised over a considerable period and has resulted in gonococci being detected and localised when other methods have failed.

*Gonococcal Rheumatism.*

First attack, gonococcus was identified.
Multiple attacks and cases of chronic urethritis where the gonococcus was identified in 106 cases.

In the course of this investigation 828 consecutive patients have been examined, including 400 which

have formed the basis of our previous analyses. Had we confined ourselves to the original 400 cases not more than two examples of gonococcal rheumatism would have been found. Of these 828 patients 294 were the subjects of a first attack of gonorrhœa and the gonococcus was found to be present.

There were four cases of gonococcal rheumatism out of the 294, as follows:—

*First Attack.*—Right knee-joint, 2; left knee-joint and left ankle, 1; right shoulder, 1. Of the 800 cases investigated 534 of the patients had either suffered from one or more attacks of rheumatism previously or were the subjects of chronic urethritis. 106 showed the presence of gonococci, leaving 428 chronic cases in which, although gonococci were not identified, yet the clinical evidence was strongly in favour of the rheumatism being causally related to the gonococcus. Of these 534 7 only suffered from rheumatism, as follows:—

*Multiple Attacks and Cases of Chronic Urethritis.*—Both knee-joints, 4; right knee-joint, 1; left knee-joint, 2.

We are of opinion that the percentages shown above are much lower than those usually described in text-books. In many instances there was a history of gonococcal rheumatism, antecedent to the attack of urethritis or articular trouble, for which they presented themselves at our clinic. We are convinced that the number of cases in which gonococcal rheumatism developed for the first time whilst the patient was suffering from an attack of gonorrhœa, for which he was treated at our clinic, has been much smaller than represented by the above percentages. We are inclined to attribute these encouraging figures to the prompt irrigation of the posterior urethra, and the thorough and systematic depletion of the vesicles and prostate of their pathological contents as soon as clinical safety permitted.

Unfortunately we have no access to statistical records to enable us to compare the present incidence of cases with that of the past or with what obtains in other clinics. Our opinion is that the number of patients suffering from gonococcal rheumatism is much less than in previous years, a possible tribute to the prompt and more efficient treatment to which patients are subjected. Again, the wider recognition by the public of the danger accruing to patients from the consumption of alcohol while suffering from gonorrhœa may be another factor productive of the reduction of cases. One outstanding fact is that there is little benefit to be obtained by only treating the joint or joints affected. Pain can be palliated in this manner, but no cure can be obtained until the causal foci present in the vesicles, prostate, &c., are actively and perseveringly treated.

*Summary of Cases (total 400).*

| | |
|---|---|
| Discharged cured .. .. .. .. .. | 138 |
| Still attending .. .. .. .. .. | 23 |
| Transferred to other clinics . .. .. .. | 7 |
| Ceased to attend .. .. .. .. .. | 232 |

(Two months, 2; one month, 7; no marriage test, 181; one attendance, 42).

It may be of interest to note that of the 400 cases 138 were discharged cured. Twenty-three were still attending when this paper was written and 7 had been transferred to other clinics, thus leaving a residuum of 232 who had ceased to attend. Of these, 181 had left without having any marriage test, 7 had left after one, and 2 after two marriage tests. Forty-two patients left after one attendance only. There is substantial reason for believing that many of those patients who left after receiving a prolonged amount of treatment, but who had not waited for the marriage tests, were really cured, although they naturally fail to figure in the list of cures.

The authors wish to thank Mr. Lett for the clinical and clerical opportunities which have made it possible to publish these notes, and also for the sympathetic encouragement and help which he has extended to them.

# NON-VOLATILE ALIPHATIC COMPOUNDS IN GENERAL ANÆSTHESIA.*

BY ROBERT K. LAMBERT, M.D.

THE production of full general anæsthesia has, since its introduction, almost always been accomplished by the sole use of gaseous and volatile substances. As preliminary measures various alkaloids have proved of considerable value, but otherwise there have been few modifications, even of the original methods of administration. The reasons for this strict adherence are evident: the large margin of safety insured, particularly by ether; the rapid absorption and excretion of gases by the lungs, enabling the anæsthetist to keep the degree of anæsthesia well under control; and lastly, the ready availability of these substances.

*The Search for Ideal Anæsthesia.*

There are, however, various disadvantages to the present-day routine anæsthesia, to which, through familiarity, we have become more or less reconciled, but which should be taken into consideration: first, the occasionally deleterious and uniformly unpleasant after-effects leave much to be desired; secondly, the double passage of large amounts of irritating gases through the lung tissues disposes toward the production of pathological processes; and thirdly, operative shock is still prevalent. In this connexion there is an important psychic factor, the emotion of fear being almost uniformly aroused, and also the effect of the abrupt induction, which necessitates a sudden adjustment of the organism to acute poisoning.

In the search for ideal anæsthesia much is to be hoped from the recent introduction of further gases, such as ethylene and the like, but there remains another large and fertile field which invites investigation. Various relatively non-volatile aliphatic compounds have been used for years in the anæsthetisation of experimental animals, and there is reason to believe that, could their use be made practicable for man, the aforementioned drawbacks to chloroform and ether might in some respects be overcome.

The most important groups of these substances are the halogen derivatives of aldehydes and ketones (chloral, &c.), the derivatives of carbonic acid (urethane, &c.), and the higher alcohols (isopral, &c.). A large number of these are now used as sedatives and hypnotics, but few attempts to extend their application have been made, and these with but partial success.

Burkhardt,[1] an exponent of the intravenous technique for the administration of anæsthetics, in 1913 experimented upon animals with various aliphatic compounds. Solutions of choral hydrate, veronal, medinal, chloralamid, paraldehyde, hedonal, and isopral were tried. Of these, he considered hedonal and isopral to be of the greatest practical value for the production of full anæsthesia; his reasons, however, are too numerous to consider in this preliminary communication.

At about the same time Mertens [2] induced partial anæsthesia in man by means of a retention enema of isopral dissolved in ether and alcohol. Full anæsthesia was then obtained, when necessary, by means of an additional small amount of chloroform. His results were excellent, but were not fully confirmed by Kleinschmidt,[3] who employed the same method.

Hedonal had already been used by Page [4] for the production of full anæsthesia, with considerable apparent success, a saline solution being given intravenously. The difficulties encountered were due more to the bulky infusion necessary than to the drug itself. The method was abandoned, however, because shortly after the onset of the war a further

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supply of hedonal could not be obtained. Isopral-ether intravenous infusion was used by Lehrnbecher [5] in 1923, and again the chief objections raised were to the bulk of fluid necessary. Moreover, it must be admitted that the technique of intravenous administration is not readily adaptable to all circumstances.

*The Use of a Mixture of Isopral and Hedonal.*

Many of the obstacles met with by these and other workers seem to have been overcome, in experiments on animals at least, by the employment of a mixture of isopral and hedonal, to be described. An ideal anæsthesia would seem to be one by which the patient could be slowly and pleasantly rendered more or less insensible in his room, easily tided over to surgical anæsthesia in the operating theatre, and in which, after operation, he would return to deep, but not too protracted, physiological sleep. The idea of using aliphatic compounds alone to attain this end was discarded, because at the present time they are insufficiently controllable in their action, and do not provide a large enough margin of safety. With a completely safe dose which will produce the proper degree of stupor, however, the benefits of superimposed ether or chloroform should be obtained, the transition stage become imperceptible to the patient (as described by Mertens [2]), and the quantity of gaseous or volatile anæsthetic be greatly reduced, while its administration might be stopped early in the operation.

By the use of a combination of isopral and hedonal many of these desiderata have been attained in animal experiments. Administration of bulky infusions is unnecessary, the late excitement, sometimes occurring after isopral alone, can be eliminated, and greatly reduced doses of hedonal can be employed. A careful plotting of time-intensity curves (see figure) makes it possible to avoid dangerous super-imposition of gaseous anæsthetics before the original non-volatile ones have reached their maximal effects, and also makes it possible to foresee with fair accuracy the duration of anæsthesia.

*Isopral.*—Trichlorisopropylalcohol, or isopral, is readily soluble in alcohol and ether, and slightly soluble in water. It is absorbed very rapidly by the mucous membranes of the alimentary canal and the subcutaneous tissues. Excretion takes place for the most part as trichlorisopropylglycuronic acid, about two-thirds being excreted in this form by rabbits (Heffter [7]). Only a trace is excreted by the lungs. The action of isopral is by no means limited to the cerebrum; the bulb, spinal cord, and sympathetic system are also affected. Very little alteration in the circulation occurs with narcotic doses, there being a slight fall in blood pressure. Toxic doses first affect the respiratory centre, and later the heart. Total anæsthesia produced by isopral alone has on occasion been followed by excitement in animals (Burkhardt [1]), and the same has occurred after its use with chloroform in man (Kleinschmidt [3]).

The hypnotic dose for man is from 0·5 g. to 1 g. (in toto), and up to 8 g. (in toto) have been given with safety (Mertens [2]).

The table of doses for animals (Heffter [7]) is:—

| | Hypnotic. | Lethal. |
|---|---|---|
| Rabbit | 0·2 g. per kilo | 0·9 g. per kilo |
| Dog | 0·093 g. „ | 0·6 g. „ |
| Cat | 0·09 g. „ | 0·25–0·3 g. |

*Hedonal.*— Methylpropylcarbinolurethane, or hedonal, is also soluble in alcohol and ether, but with difficulty in water. Absorption and excretion both take place very slowly, but there is complete oxidation in the body to carbon dioxide, water, and urea. Sleep effected by hedonal is closely akin to the physiological, the respiration and blood pressure being practically unaltered, save in the normal manner. Anæsthetic doses in man and animals produce no stage of excitement, but the duration of anæsthesia is protracted.

The hypnotic dose for man is from 1·5 g. to 2 g. (in toto). A dose of 8 g. (in toto) has been followed by untoward symptoms (Lederer [4]).

The table of doses for animals (Heffter) is:—

| | Hypnotic. | Lethal. |
|---|---|---|
| Dog | 1–8 g. (in toto) | 10–15 g. (in toto) |
| Cat | 0·3–0·8 g. „ | 1 g. „ |

The differences between the physiological actions of hedonal and isopral are striking. The former is slow of onset, while with the latter almost immediate effects can be perceived. That this is due to a different rate of absorption and not to immediate cellular effect has been very kindly demonstrated by Prof. A. J. Clark, who has perfused the isolated frog's heart with solutions of the drugs. Under these conditions, indeed, hedonal produces a more rapid action than isopral. The intact animal, however, absorbs and apparently excretes isopral much the faster of the two. The difference in the rate of action of the two drugs when given hypodermically is shown by the curves (see figure) (this difference is, of course, not observed with intravenous administration, where there is no factor of absorption).

As has been mentioned before, the use of isopral alone has been unsatisfactory. When hedonal is administered alone, by any means other than the intravenous, there is too long a latent period before the summit of the curve can be reached, for practical purposes. By mixing the two, however, in the proper proportions an effect can be obtained in a short time, while the hedonal action occurring late apparently eliminates excitement.

Administration of fixed narcotics via the alimentary canal is unsatisfactory not only because of the great variability of action, but because here again a considerable lapse of time is required before the drug can have its full effect. The intravenous use would perhaps be the route of choice were it not for the fact that these preparations are only sparingly soluble in water making an unpleasantly large bulk necessary. It has been found that the physical properties of isopral and hedonal make a mixture peculiarly adaptable for injection, subcutaneously or intramuscularly. Both are solids, hedonal melting at 76° C. and isopral at 49° C. When warmed together in certain proportions the melting points are sufficiently lowered to cause liquefaction. There is no ascertainable chemical change, and refrigeration will often cause a distinct separation into layers. Moreover, shaking the mixture in water does not split off chloral. A good proportion to produce a rapid induction of narcosis, without too sudden ataxia or too sustained an effect, appears to be two parts by weight of isopral to one of hedonal, which is given intramuscularly. The mixture, made by warming the ingredients together, remains fluid at room temperature; but a small quantity of sterile olive oil is added to insure this being the case, and at the same time is useful in bringing the bulk of the mixture from a little below, to exactly three parts by volume—i.e., 2 g. isopral + 1 g. hedonal = 3 c.cm.

Because of the slight volatility of these substances when warmed, it is deemed wiser to mix them by means of aseptic technique while in their dry state, and then to add sterile olive oil rather than to attempt sterilisation of the mixture as used. (For the same reason tight stoppers and not cotton plugs should be used in containers.) Bacteriological cultures of the mixture made in the above manner have failed to yield organisms of any kind; in fact, Howard and Stimpert [6] have recently shown that there is considerable bactericidal action of isopral.

The following table of doses has been determined for rats by a series of experiments. The preparations were given subcutaneously, the isopral being warmed above its melting point and given directly, and the hedonal dissolved in a small quantity of 50 per cent. alcohol. (Control rats injected with similar quantities of 50 per cent alcohol were, of course, observed.) With reference to this table it must be borne in mind that the apparent effective dose for smaller animals is of little value as applied to the dose for man, because minor psychic and physical changes are not readily demonstrable in the animals.

The considerably lower margin of safety provided by hedonal is noteworthy.

| — | Minimal effective dose. | Anæsthetic dose. | Minimal lethal dose. |
|---|---|---|---|
| | per kilo. | per kilo. | per kilo. |
| Isopral .. .. | 0·05 g. | 0·25 g. | 0·50 g. |
| Hedonal .. .. | 0·075 g. | 0·19 g. | 0·28 g. |
| 2 isop. + 1 hedon. | 0·05 c.cm. | 0·30 c.cm. (or 0·25 c.cm./k. intramusc.) | 0·60 c.cm. (or 0·40 c.cm./k. intramusc.) |

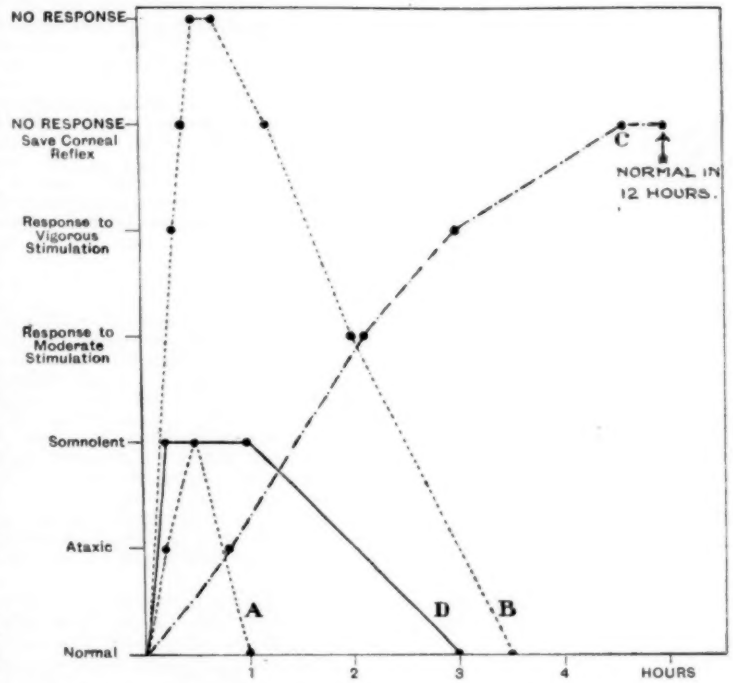
It was found that a dose of 0·15 c.cm. per kilo of the I.-H. mixture given intramuscularly was very useful for determining the effects of superimposed gaseous anæsthetics in cats. By leaving the cat in a dark, quiet place for about two hours after the injection a state of somnolence was obtained, so that the cat could only be roused by considerable agitation.

It is necessary to keep animals quiet following an injection. The rapidly progressive ataxia produces fright, and accordingly a certain amount of excitement in animals which remain active through one cause or another. Animals which are kept quiet and soothed always evince happiness and contentment. It is possible to overcome part of the action of the drugs by continual psychic stimulation—e.g., by placing a mouse within the cat's range of vision.†

A series of laparotomies were performed upon cats under ether which had been preceded by sufficient isopral-hedonal to produce stupor (0·15 c.cm. per kilo), but not full anæsthesia. These were controlled by another series in which ether alone was used. The degree of anæsthesia and blood-pressure level remained strikingly uniform in the first series of cases with doses of about 10–15 c.cm. ether, despite numerous shock-producing manipulations. In the controls, however, it was necessary to give about three to four times as much ether during the operation, and under no circumstances could as even an anæsthesia be obtained, nor could the blood-pressure level be kept as constant. In the control animals vomiting occurred soon after the administration of ether was stopped, whereas the animals under united anæsthesia passed from full anæsthesia to post-operative sleep which lasted several hours, and little vomiting was observed.

Intraperitoneal injection of the same dosage will produce complete anæsthesia within nine minutes, but the use of this route has not yet been carefully investigated. As yet, small doses only have been given to man. Nevertheless, general effects have been observed from as little as 0·5 c.cm. subcutaneously. At the site of a subcutaneous injection there is slight localised soreness and œdema, persisting about two hours, but no redness. But as with several other moderately irritating substances, it can be freely used intramuscularly without unpleasant local effect. A further mixture with novocaine has not been injected, because of a slight liberation of chlorine which takes place. The region of nerve trunks must be carefully avoided, as the isopral is an alcohol, and has been shown to paralyse an injected nerve.

The practical application of these drugs to man is now being attempted at the surgical unit of the University College Hospital, and it is hoped that other investigators will find the problem worthy of their attention.




The effect of isopral, hedonal, and a mixture of the two on rats. A, 0·05 g. isopral per kilo. B, 0·25 g. isopral per kilo. C, 0·20 g. hedonal per kilo. D, 0·10 c.cm. isopral-hedonal per kilo (2 parts isopral to 1 part hedonal by weight, plus olive oil to make 3 parts by volume).

*Summary.*

It is suggested that by the preliminary use of non-volatile aliphatic compounds in general, and more particularly by a mixture of isopral and hedonal, the following benefits may result: (1) The patient may be made drowsy and content, or completely somnolent before leaving the ward. (2) The completion of anæsthesia by gaseous anæsthetics may be facilitated, and the duration of their use be reduced. (3) After operation, the patient may fall into prolonged and healthy sleep.

Because up to date only small and tentative doses have been administered to man these benefits have not yet been obtained, but the results of animal experimentation encourage the hope that they will be found to accrue.

I wish to express my gratitude to Prof. A. J. Clark and Prof. C. C. Choyce for their interest and help, and to Dr. H. D. Wright for making the necessary bacteriological observations.

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† In this regard it may be of interest to mention the commonly accepted belief that morphia always produces excitement in cats. In the physiological laboratories of the University College it has been found that morphia may be given to cats if only a little skill is used in soothing the animal into a quiet condition during the injection. The excitement said to be due to the morphia is the result of manipulation and may be avoided.

## HERPES ZOSTER IN SPONTANEOUS SUBARACHNOID HÆMORRHAGE.

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THE object of this note is to record the occurrence of an herpetic eruption of nerve-root distribution in two cases of spontaneous subarachnoid hæmorrhage. This symptom was not present in nine cases I have seen myself, nor, so far as I know, has it been observed by others.

CASE 1.—A woman, aged 42, previously healthy, was found unconscious at her bedside and removed to the St. Marylebone Infirmary where I saw her on the fourth day of her illness. She was then conscious but irritable and confused; she resisted attempts to examine her and, except for repeated complaints of headache, was unable to give an account of her symptoms. She presented the classical picture of acute cerebro-spinal fever with extreme rigidity of the neck, Kernig's sign, and pyrexia. Ophthalmoscopic examination revealed recent papilloedema of both discs; on the right side, beyond the swollen disc, were several large collections of blood, very dark, bulky, with rounded edges not at all flame-shaped, and quite unlike ordinary retinal hæmorrhages. It looked as if drops of blood had been allowed to fall upon the retina from a large-bored pipette. On the left side, in addition to several large round hæmorrhages, there was one, very large, with a horizontal upper and a rounded lower border, in size and shape like half a threepenny-piece. The abdominal and thoracic viscera appeared to be healthy; the urine was free from albumin and sugar; the Wassermann reaction was negative in the blood and cerebro-spinal fluid. Lumbar puncture yielded cerebro-spinal fluid under increased pressure intimately mixed with blood. The patient improved steadily for several weeks but died rather suddenly, apparently from a recurrence of meningeal hæmorrhage. During the period of improvement her mental state was exactly that known as Korsakoff's psychosis, a condition I have seen in others recovering from the disease. The body was not examined after death, but the history of unconsciousness with recovery to a condition indistinguishable from cerebro-spinal fever, the subhyaloid hæmorrhages, the bloody cerebro-spinal fluid, and the mental state in the later stages leave little room for doubt about the diagnosis which receives confirmation from the mode of death.

In this patient a copious eruption of herpetic vesicles appeared on the upper part of the chest and over the deltoid muscle on the left side in the area of skin supplied by the fourth and fifth cervical sensory nerve-roots. It was present when I saw her first on the fourth day of her illness.

CASE 2.—A man, aged 37, previously healthy, complained one evening of severe headache of sudden onset; during the night he was restless and rambled in his speech; by the morning he was, in his wife's words, "conscious and no more." When I saw him at Charing Cross Hospital on the fifth day of his illness his condition was that of a man with fully-developed acute cerebro-spinal fever. Before I saw him bloody cerebro-spinal fluid had been withdrawn by lumbar puncture and spun in a centrifuge; the supernatant fluid was yellow; this proved that blood had been present in the fluid for many hours and was not due to a faulty puncture. The Wassermann reaction was negative in the blood and cerebro-spinal fluid; the urine was normal. The patient died on the eighth day. After death Dr. A. Piney found blood in the subarachnoid space over the whole surface of the brain. Around the middle cerebral artery on the left side, about 1 inch from its origin, was a recent blood-clot about the size of a walnut. A probe within the artery met an obstruction on reaching the centre of the clot; careful washing and dissection revealed a ruptured aneurysm on the artery large enough to contain a cherry stone. The brain and cerebral arteries were otherwise perfectly healthy, as were all the other organs of the body.

In this case, where the diagnosis was confirmed after death, an herpetic eruption appeared on the right side of the chest in the lower part of the area supplied by the fourth cervical sensory nerve-root. The patient's wife noticed it first on the third day of the illness.

*Remarks.*

When confronted by the symptoms of meningitis in a patient free from disease in which inflammation of the meninges is a probable complication, and beyond the age at which tuberculous meningitis usually occurs, the physician should think rather of meningeal hæmorrhage than of meningitis itself, for the former is much the more likely cause; and if herpes zoster is a symptom it is still more likely, as herpes, except on the face, is almost unknown in meningitis due to organisms. The cases described above exemplify the two common forms of spontaneous subarachnoid hæmorrhage. In one form there is coma leading to death or recovery to a condition simulating acute meningitis, in the other the symptoms are those of meningitis throughout. In both of these cases the bloody cerebro-spinal fluid indicated the correct diagnosis; in one the characteristic subhyaloid hæmorrhages provided evidence that blood had been shed around the base of the brain. In young people the blood usually comes from an aneurysm which forms at the site of a congenital defect in an artery, near its origin from the circle of Willis. In older patients a ruptured arterio-sclerotic vessel is the commoner source. In some cases in which blood has been found evenly distributed throughout the subarachnoid space careful search has failed to reveal a ruptured vessel, and the condition is attributed to a general "weeping," analogous to that which is said to occur in "true gastrostaxis" and in certain cases of hæmaturia. My own feeling is that the proportion of cases in which rupture of a single vessel is discovered will increase with the amount of care that is used in searching for it.

The potency of blood free in the cerebro-spinal fluid is shown by the severity of the irritative phenomena in this disease; headache is never more sudden and severe, nor is neck-rigidity or Kernig's sign ever more distinct in true meningitis than in some of these cases. It is not difficult to account for herpes zoster, for the spinal subarachnoid space extends outwards around the posterior roots, sometimes as far as the root ganglion. The anatomical arrangement differs in different individuals and in the same individual at different spinal levels. I assume that in my cases blood in the spinal subarachnoid space reached certain ganglia by this route, and then by irritation produced the same result as it does when hæmorrhage occurs within the ganglion itself.

I am indebted to Dr. Basil Hood, medical superintendent, St. Marylebone Infirmary, and to Dr. W. Cecil Bosanquet, senior physician, Charing Cross Hospital, for permission to publish these cases.

## AN EASY METHOD OF PERFORMING TRACHEOTOMY.

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ANY medical man, whether experienced in surgical work or not, may be suddenly called upon to perform a tracheotomy. In a fat, struggling, nearly asphyxiated child, with the veins in the neck distended with blood, this small operation done in the usual way, may become formidable to one without much practice. Time may be wasted, blood may enter the trachea, and the incision in the trachea may be wrongly made.

By the technique advocated below the operation becomes almost bloodless, is freed from all possible confusion; the trachea is held steady and is clearly exposed to view and no blood can enter. After a little practice the operation can be performed within one minute. A preliminary note written in

conjunction with my then house surgeon, Dr. Yue Man Kwong, on this as well as on other points in connexion with tracheotomy appeared in the *Caduceus* for May, 1924, and was subsequently reprinted in the *China Medical Journal*. Further experience with this method has seemed to justify its wider publication.

FIG. 1.

*Technique.*

The child is held lying on its back on a flat surface. An assistant on the child's left places his right hand on the child's forehead and his left hand on the child's occiput and extends the head to the maximum point. The chin is raised so far that the front of the neck is a flat surface from the sternum to point of chin (Fig. 1). This is necessary to enable the subsequent use of artery forceps without their bows being obstructed by the point of the chin (Fig. 10). A median skin incision is made 1½ inches long vertically downwards starting from the *upper* border of the cricoid cartilage. The deep fascia uniting the sternohyoid muscles is divided vertically (Fig. 2). The cricoid cartilage is exposed and the fascia, attached to its lower border, is incised transversely to expose the commencement of the trachea (Fig. 3). A single closed pair of pressure forceps is passed downwards and backwards close to the trachea and behind the isthmus of the thyroid gland (Figs. 4 and 5). A very slight opening and shutting of the forceps may assist their passage. The tissue thus raised is clamped close to the middle line first by one pair of forceps (Fig. 6) and then by a second pair placed parallel (Fig. 7). The fascia and thyroid isthmus between the forceps are then divided and the two pressure forceps are each rotated in a lateral direction through 90° and the handles are slightly depressed so as to raise the points. The rotation of the forceps usually peels the tissues from the trachea sufficiently to expose its anterior aspect, but a touch of the knife at either side will fully lay bare the front of the trachea (Fig. 8). As the thyroid gland is intimately connected with the trachea and the cricoid cartilage, this manœuvre raises the trachea to the level of the skin, exposing the first four rings with utmost clearness (Fig. 9). The vertical incision (through the second, third, and fourth rings) should not be made by the "guarded stab" but should be gently incised with the knife held pen-holder fashion, the little finger of the right hand resting on the upper border of the manubrium. The stab is to be avoided because the trachea is flattened antero-posteriorly by thus being brought to the surface, and the posterior wall would be in danger (Fig. 9).

FIG. 10.

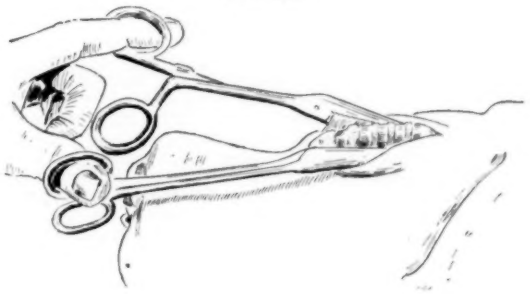

FIG. 2.

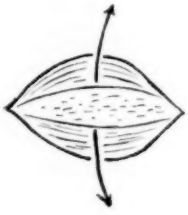

FIG. 4.

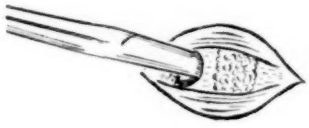

FIG. 6.

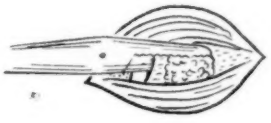

FIG. 8.

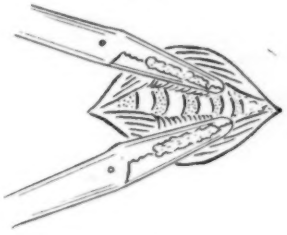

FIG. 3.

FIG. 5.

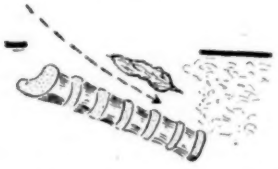

FIG. 7.

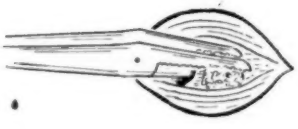

FIG. 9.

I am indebted to my clinical assistant, Dr. S. H. To, for his care in preparing the illustrations to this note.

CHILD WELFARE AND TOWN PLANNING. — A sessional meeting of the Royal Sanitary Institute will be held at the Town Hall, Bradford, on Friday, Feb. 5th, at 3 P.M., when a discussion on Child Welfare Centres and their Adjuncts will be opened by Dr. J. R. Kaye, Dr. Helen Gall, Dr. Charlotte Douglas, and Dr. Katherine Gamgee. The chair will be taken by Sir Arthur Newsholme, vice-president of the Institute, and at 5 P.M. the subject of Town Planning and Improvement Areas will be considered. Contributions will be read by Mr. F. Marsden, city engineer and surveyor, Bradford, and Mr. F. White, chief sanitary inspector. For the following day visits have been arranged to the child welfare and antenatal clinics and to the town planning and city improvement areas.

# THE TREATMENT OF PULMONARY TUBERCULOSIS WITH SANOCRYSIN.[1]

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PROFESSOR OF MEDICINE IN THE UNIVERSITY OF LONDON.

SANOCRYSIN and its complementary antituberculin serum have now been used in England by a limited number of observers for a little more than a year. We tried it on human patients because Danish workers had stated that with this drug they could arrest or cure tuberculosis when implanted experimentally in calves. The proof of such laboratory result with animals would compel clinicians to essay every possible means of adapting the treatment to human cases. Mollgaard's experiments on the calf have been criticised, but not, I think, refuted. I hope that we may hear more information this evening on that point, for it lies at the very heart of the whole matter.

Turning, then, to observations on human cases, the first question is that of the movements of the drug through the body. Sanocrysin is a very soluble thiosulphate of sodium and gold, containing 40 per cent. by weight of the latter metal. It is given intravenously as a solution in 10 c.cm. of water, and care is needed to prevent the needle from leaving an indelible black spot in the skin. For the first few days after an injection gold can be detected in the urine easily, and to a less amount in the fæces. Frandsen, of Copenhagen, has made numerous observations on human cases and found that only 30 per cent. is so excreted; the rest stayed indefinitely in the body. The only analysis of which I am aware as giving information about the places of storage of that gold were made by Mr. C. R. Harington in two of my cases that died. The tissues were ashed and the metallic gold extracted and weighed.

The first case died one day and the other 27 days after the last injection. The rapid excretion of gold in the urine is illustrated in the first case, where the contents of the bladder at death, altogether apart from urine previously voided, held nearly 5 per cent. of the gold given. But a large proportion remains stored in the body; Frandsen said 60 per cent. We recovered only 10 per cent. in the organs analysed—namely, the liver, kidneys, and lungs—but these organs formed only one-twentieth of the body-weight, and therefore the distribution elsewhere, in muscles or in the bones, as with lead, cannot be at a similar concentration. The gold tends to accumulate in the kidneys, as is shown in the second case after 27 days. In this patient it had definitely disappeared from the lungs, which were the only site of tuberculous infection. The drug is therefore not held up for long in tuberculous areas. Its concentration in the kidney was 60 times as great as its concentration in the liver. Even so this patient did not show albuminuria.

We must therefore remember, when attempting to gauge the dosage of sanocrysin, that the concentration in the blood and around the tuberculous areas falls off in a few days, but that a large proportion of the total gold given is stored in the body and that it accumulates especially in the kidneys.

### *Clinical Effects of Administration.*

The obvious clinical results of administering the drug, in a dose of ½ g. followed three or four days late by 1 g., may be briefly recapitulated. There is generally a little nausea, and the patient may vomit once or twice in the first few hours. Some complain of a persistent metallic taste in the mouth with dislike for food. There may be a slight headache. That is all, except in patients with active and well-vascularised tuberculous infections. In these the temperature rises; there is often an intense and widespread rash, scarlatiniform or morbilliform; there may be albuminuria with renal casts, but never any œdema or serious diminution of urine. The general reaction is not one of severe discomfort. But if the drug is pushed unduly there may suddenly develop alarming features, either of hyperpyrexia or of so-called "shock" with fall of temperature, a rapid and weak pulse, hurried breathing, and general collapse. Also, excessive dosage may lead to intense albuminuria, to persistent vomiting or diarrhœa, with complete distaste for food and rapid loss of weight. Most of these features were ascribed by the Danish physicians to the liberation of tubercle toxins from bacilli killed by the sanocrysin, and to combat them a special antituberculin serum was prepared. The features of the reaction in the rash, though not the albuminuria, do closely resemble those that were seen with big doses of tuberculin when that method of treatment was first introduced.

But whichever be the cause, whether the tubercle toxins or the ill-effects on the tissues of an excessive concentration of the gold salt, there is very real danger in an ill-regulated use of sanocrysin. There may be sudden or progressive exaggeration of the more serious symptoms of the tuberculous infection, or there may be a poisoning of the kidney, of the liver, and even of the skin, with a drug dermatitis that is quite distinct from the relatively transient rash. All these dangerous features are far more liable to arise in the sanocrysin treatment of tuberculous patients than in the use of salvarsan for syphilitic or other infections.

### *Results of Treatment.*

I have treated only 11 cases. Four of these may be discarded, three being of glandular or bony infection and giving no special information, while the fourth was a patient in whom no diagnosis was ever made. That leaves only seven, and two of these died. This number is far too small to justify any sound conclusions, and I can only submit the results of my own experience in the form of impressions.

In the first place, I think that the treatment has not done harm to any case under my care. This statement requires some amplification. There were two deaths during treatment, those from which the tissue analyses were made. The first was a hopeless case of tuberculous meningitis; the second was a patient with rapid and very extensive caseation, a galloping consumption of the lungs. Here one can only urge a personal judgment, that the patient was desperately ill before treatment was commenced, that he survived a month after the cessation of treatment, and that his downward progress did not seem to have been much influenced for the worse by the sanocrysin treatment.

There was a third case in which for many months I thought that harm had resulted. This was the first case treated in England. At that time the principle which we in London had received from the Danish work as a guide in our trials of the drug was that sanocrysin is bactericidal, but that the tubercle bacilli may soon become resistant to the drug. Therefore it was necessary to push the sanocrysin heavily at the outset and fight at once for victory, even at the cost of some distress to the patient. Grave reactions were to be countered by the use of the special antituberculin serum. It is likely that the acceptance of this principle led to some of the difficulties or disasters that at first were encountered in treatment. Latterly it has been the custom in Denmark and elsewhere to give smaller doses at longer intervals. Serum is then rarely needed, for the patient is not made ill by the reactions. Of course, it may be that this gentler procedure is not the best way of advancing the cure, but at present one can only judge the problem clinically, for there are no tests available on the pathological side, by examination of the blood serum or otherwise, which can serve to inform clinicians about the reactions which occur.

[1] Being a contribution to a discussion at the combined Sections of Medicine and Therapeutics of the Royal Society of Medicine on Jan. 12th, 1926.

To return to the particular patient. She was a girl of 18, of very poor physique and with bilateral apical tuberculosis. During three months she remained in hospital under good routine treatment, yet with tubercle bacilli always present and no improvement. She was then treated heavily with 6 g. of sanocrysin and with serum, for she had two dangerous collapse reactions. Subsequently she had incessant vomiting for a week, then anorexia and loss of weight. There was albuminuria to 1·5 per cent. On discharge from hospital she was still thin and ill, but she refused to go to a sanatorium and remained at home in a quite poor environment. But she improved steadily. She has now, a year after her treatment, put on a stone in weight. She is plump and well with neither cough nor bacilli in the sputum, and the pulmonary disease is completely arrested. Her urine is normal. My earlier impression was therefore mistaken and in her case the drug not only did no serious harm, but seems to have done good, for her prognosis was originally a poor one. In all subsequent cases I have used less intensive treatment, have rarely employed serum, and have seen no suggestion of harm as the result of giving sanocrysin, but, on the contrary, the treatment has seemed to coincide with a real improvement in each patient.

### *A Specific Action?*

Secondly, the sanocrysin appeared to have a specific action on tissues infected by tuberculosis. This was suggested by an unusually inflammatory vascularisation of the tuberculous areas in my two cases which were examined post mortem. In other pulmonary cases which did not die there was evidence of a focal reaction in some pain in the chest, slight dyspnœa, and often an increase for a while of adventitious auscultatory sounds. There was no proof of the tubercle bacilli being killed directly by the gold salt; but the inflammatory reaction in the tuberculous areas was attended by the escape into the circulation of toxins which produced general bodily reactions similar to those caused by large injections of tuberculin. Such general reactions were seen only in patients with active and well-vascularised tuberculous lesions. But the converse deduction—namely, that a well-marked reaction to sanocrysin is proof of an active tuberculous infection—cannot yet be made, for, so far as I am aware, no clinician has tested the drug in a sufficient variety of other diseases. I tried sanocrysin in one case of tuberculosis of the cervical glands and in another of a tuberculous fistula from the shoulder-joint. There was no reaction at all and no benefit. The drug was not injected into the fistulous tract itself.

A satisfactory type of reaction occurred in a patient 18 years old, who had an acute and extensive infection of the left lung and less than two months' history of illness. On account of the apparently rapid spread of infection he was kept under preliminary observation in hospital for only ten days. An injection of 1 g., after a preliminary ½ g., caused a prolonged rise of temperature accompanied by a generalised rash. The rash recurred briefly with the next injection. There was no albuminuria and no uncomfortable malaise. In all the patient received 4½ g. in two months. His general condition improved rapidly after the third injection, his fever ceased, and the tubercle bacilli tended to disappear, while the cough and sputum became trifling. He went home and two months later had gained 9 lb. in weight, while feeling active and taking long walks. Subsequently he was admitted to a sanatorium from which satisfactory reports of his progress have recently been received. I think that this case was an example of an exceptionally rapid abatement of what appeared to be a serious tuberculous infection.

My impression has been that the best results are seen in patients who react at first with sharp fever and rash. The next injection must then be delayed for a week after the fever reaction or even much longer so as to ensure that the following reaction shall be of a less severe character. If the injections are spaced widely enough dangerous reactions and loss of weight can be avoided and there will never be more than a trifling albuminuria. The albuminuria is certainly related more to the total quantity of sanocrysin given and to the time intervals between doses than it is to the severity of the reactions in fever and in rash.

Lastly, I wish to refer briefly to two cases of which some account has already been published. One was a girl, aged 20, with a localised collection of fluid in the lower abdomen reaching nearly to the umbilicus. The diagnosis of tuberculous peritonitis was not proved by opening the abdomen, but there was a history of pleurisy six years before, leaving persistent physical signs and changes in the X ray appearance of the chest, and also of tuberculous peritonitis three years before. The patient was treated in hospital for three months without improvement. She was then given sanocrysin, 4½ g. in 17 days. She reacted with fever and a rash. At the end of the treatment the fluid had completely disappeared. Five months later there was nothing abnormal to be found on pelvic examination; she had put on more than a stone in weight and she has now returned to work. The diagnosis was reasonably certain and the striking feature of the case was the extremely rapid disappearance, in three weeks, of all physical signs in the abdomen simultaneously with sanocrysin treatment.

The other case was one of equally rapid improvement under sanocrysin, but in which the diagnosis of tuberculous infection was not firmly based. A boy of 14 developed tuberculous glands in the neck. These were excised and the infection in them proved. He had also had enlargement of the hilum glands in the chest. After the operation on the neck he developed signs of pulmonary infection. This continued and ultimately the X rays showed a persistent area of consolidation in the right lower lobe. But there was no sputum and there were no tubercle bacilli in the stools. The boy was under observation for four months in hospital, during which time fever persisted, and there was progressive loss of weight. When treatment with sanocrysin was commenced at the end of this time he was critically ill. He received 1¼ g. in six days. There was a sharp pyrexial reaction and a rash. Soon after this his fever abated and finally ceased. He rapidly regained weight, ultimately putting on 2 st. The signs in the chest slowly lessened and three months after treatment the radiogram of the lung was almost normal.

The clinical history and, though this is rather begging the question, the reaction with fever and rash to sanocrysin do suggest that the acute pulmonary infection was due to tubercle. In any case the treatment coincided with an extraordinarily rapid recovery in a patient who up till then had been gravely ill—so no harm was done.

### *Conclusions.*

As I emphasised at the outset, the number of patients whom I have treated with sanocrysin is very small. They were selected as examples in whom any quick improvement of their diseased state would not have been expected under the ordinary routine of treatment. The prognosis of a tuberculous infection is hazardous, even for physicians with long and special clinical experience; and that I do not possess. But in the cases that I have quoted the turn for the better occurred almost simultaneously with the treatment by sanocrysin; and though coincidences do occur in a most misleading fashion in practical medicine it seems to me unlikely that all these four should have been only chance coincidences. My own opinion is in full accord with that of Prof. Faber, of Copenhagen, a physician of very wide clinical experience, who started the use of sanocrysin with perhaps a prejudice against it, but summed up his results in a statement that in sanocrysin he found a drug that produced more rapid improvement in pulmonary tuberculosis than could be obtained by any other method of treatment that he knew.

# ACUTE HÆMORRHAGIC NEPHRITIS IN CHILDREN.

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AND
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THE occurrence of a hæmorrhagic form of acute nephritis has long been recognised by children's physicians in this country, and Sir Thomas Barlow referred to it in his clinical teaching at the Hospital for Sick Children, but it is noticeable that as a distinct type of nephritis it has hardly yet found its way into the text-books of medicine. Our attention was called to this condition by a striking case, recently admitted under the care of Dr. Robert Hutchison, a full account of which appears below, and a search of the records of the hospital for the last three years has revealed the fact that this type of nephritis is by no means uncommon. The clinical features are sufficiently obvious to enable a case to be placed in this category and differentiated from other forms of nephritis by a perusal of the notes. A classification of 87 cases of nephritis of all varieties, acute and chronic, is set out in Table I. In passing it may be said that we have been guided in our classification of chronic nephritis by the amount of albumin in the urine and the specific gravity, the amount of œdema, the urea and cholesterol contents of the blood, and the urea-concentration test, keeping closely to the work of MacLean.

TABLE I.—*Analysis of 87 Cases of Nephritis Admitted to Great Ormond-street Hospital during the Three Years July, 1922, to June, 1925.*

| | Cases. | Per cent. |
|---|---|---|
| Acute nephritis .. .. .. | 23 .... | 26·4 |
| Acute hæmorrhagic nephritis .. | 22 .... | 25·3 |
| Chronic nephritis .. .. | 42 .... | 48·3 |

The cases of chronic nephritis were further classified as—

| | |
|---|---|
| Chronic parenchymatous nephritis .. | 23 |
| Chronic interstitial nephritis .. .. | 19 |

of which eight were examples of renal dwarfism with bone changes.

### *Two Types of Acute Nephritis in Children.*

It will be seen, therefore, that acute nephritis in children can be classified under the two headings of hæmorrhagic, and of what has been variously called acute parenchymatous or acute "exudative" nephritis. The latter is the form described fully in most text-books, and is characterised in a typical case by general œdema, headache, vomiting, a rise of temperature, a reduction in the quantity of urine, which is albuminous to a degree exceeding that accountable for by the amount of blood which may be present during the period of oliguria. Large numbers of casts are found of all varieties and the blood pressure is often raised. The hæmorrhagic variety is distinguished from this by the occurrence of a more benign disease, in which blood appears in the urine quite suddenly, sometimes during, but usually a few days after some acute or subacute infection of the naso-pharyngeal region, and may continue to be passed in smaller quantities for several days or weeks. The question of the focus of sepsis will be discussed more fully later. There is rarely any vomiting or headache associated with the onset, œdema, if it occurs at all, is slight, seldom more than some puffiness of the eyes, which disappears rapidly. The urine is little, if at all, reduced in quantity and contains a large amount of blood, often remaining red or very smoky for several days, and the amount of albumin present can be largely accounted for by the degree of hæmaturia. In about one-third of our cases a few casts were found in the urine, and these were either epithelial, granular, or blood casts. Retinitis is not observed. There is usually no rise of blood pressure and the heart is not enlarged. The blood-urea is very seldom raised, and the urea-concentration test, where it has been carried out, is within normal limits. The condition subsides quickly in most cases, sometimes even in a few days, but usually in a few weeks, the blood and albumin in the urine gradually diminishing in almost equal proportions.

### *Ætiology of Acute Nephritis in Children.*

Streptococcal infections are the commonest precursors of acute nephritis in children, but the staphylococcus and pneumococcus may also be responsible. In our series of cases bacterial investigations of the urine have been disappointing, but in one case of hæmorrhagic nephritis streptococci were obtained from a parotid abscess, and a closely similar, if not identical, organism was isolated from the urine. With regard to a focus of sepsis it must be pointed out that while it is generally supposed that acute nephritis is associated with some such definite cause, the localisation of this source of infection is more often traceable in the hæmorrhagic than in the "exudative" or parenchymatous type, and, indeed, forms a striking feature of the former condition.

Throat affections predominate in the history of hæmorrhagic nephritis. Tonsillitis, with or without an associated otitis media, is by far the commonest cause. Cervical adenitis, carious teeth, parotitis, and pneumonia are other certain causes. Purpura, impetigo contagiosa, and naso-pharyngitis have also been cited by various authors as predisposing to this condition. Although it is true that a history of one or other of these conditions quite often precedes an attack of the "exudative" or parenchymatous variety of nephritis, yet in many cases of this type no cause can be traced. Nephritis as a complication of scarlet fever and the other exanthemata is usually believed to be of the "exudative" type.

A study of Table II., in which the clinical features of our 22 cases of hæmorrhagic nephritis are set out, and the following description of Case 14, by which our attention was first drawn to the condition, will serve to bring out certain further points which can then be discussed.

### *Clinical Record.*

CASE 14.—K. A., a girl, aged 8 years 8 months, admitted in January, 1925. In September, 1923, she ran a high temperature on and off for six weeks and passed smoky-coloured urine. In March, 1924, blood again appeared in the urine, associated with a rise of temperature, and in the attack the right ear ached and there was a discharge from it. In July, 1924, there was a further attack of hæmaturia. The child then remained well until January, 1925, when hæmaturia reappeared, and there was some pain in the right ear and a slight rise of temperature. On admission there was no œdema present save for slight puffiness under the eyes. The urine was smoky, containing blood and albumin, and a catheter specimen was free from any organisms. Microscopically, the urine contained red blood corpuscles and granular, epithelial, and hyaline casts. A cystoscopic examination revealed nothing abnormal, and specimens of urine obtained by ureteric catheterisation showed only the changes already mentioned. The blood count was normal and the complement-fixation test for tuberculosis was negative. A guinea-pig was inoculated with urine, but when killed gave no evidence of tuberculosis. The blood-urea was 37 mg. per 100 c.cm. and the blood cholesterol 126 mg. per 100 c.cm., and a urea-concentration test was normal (3·1). There was no enlargement of the heart and the blood pressure was 120 mm. of mercury.

On Jan. 23rd, 1925, Mr. Twistington Higgins operated upon the right ear and removed some chronic granulation tissues from the tympanic antrum. Blood was still present in the urine when the patient developed whooping-cough and had to be sent home, where she was said to have made a good recovery and the urine became normal in appearance. When seen on May 21st, 1925, the urine contained a trace of protein, some red blood corpuscles, and no casts. The urea-concentration test was again normal (3·9), blood pressure was 118 mm., and there was no enlargement of the heart.

TABLE II.—ANALYSIS OF 22 CASES OF HÆMORRHAGIC NEPHRITIS, 10 BOYS AND 12 GIRLS.

| Year. | Case. | Age. | Symptoms of onset. | Source of sepsis. | Urine on admission. | Blood-urea mg. per 100 c.cm. | Urea-concentration test: maximum. | Progress in hospital. |
|---|---|---|---|---|---|---|---|---|
| 1922 (6 mths.) | 1 K. B. | 3 9/12 | Frequency. Brown urine (1 year). | Parotid abscess. | Heavy cloud of alb. Blood ++. Epith. casts. | — | Borderline. 1·9%. | Discharged with blood in urine. B.P. 70. |
| | 2 E. D. | 6 | Swelling of face and legs. Dark urine. | Tonsillitis. | Alb. +++. Blood +++. Granular casts. | — | — | Few R.B.C.'s still present on discharge. |
| 1923 | 3 A. P. | 9 | Brown urine following chicken-pox. | ? | Blood +. Trace of alb. No casts. | — | Fair. 2·4%. | Blood increased while in hospital and then cleared up. |
| | 4 C. A. | 6 | Discharging ear; headache; sore-throat; and bloody urine. 3 weeks. | Tonsillitis. Otitis media. | Alb. +. Sev. casts. R.B.C.'s +. Streptococci found. | — | — | Tonsillectomy followed by disappearance of blood from urine. |
| | 5 E. G. | 2 | Brown urine; puffy face; frequency; thirst. | Tonsillitis. Teeth bad. | Trace alb. Numerous R.B.C.'s. Epith. casts. | 38 | Normal. 2·9%. | Four teeth extracted. Blood disappeared. |
| | 6 J. M. | 6 9/12 | "Thick" urine; puffy face; vomiting. | Tonsillitis. | Alb. +. Blood ++. | 43 | Normal. 3·2%. | Blood and alb. disappeared. |
| | 7 D. R. | 6 | Swelling of face and legs, said to follow influenza. | " | Alb. ++. Blood +. | 40 | Fair. 2·0%. | A boil developed and hæmaturia increased. Tonsillectomy and hæmaturia disappeared. |
| | 8 J. M. | 3 7/12 | Dark urine. Puffy feet and eyes for 3 days. | Otitis media for 14 days. | Smoky. R.B.C.'s +. Alb. ++. Casts granular; few. | 30 | Normal. 3·6%. | Blood in urine disappeared and ear ceased discharging. |
| 1924 | 9 D. R. | 4 | Blood in urine. Swelling of abdomen, eyes. 1 month. | Tonsillitis. | Blood +. Alb. trace. | — | Fair. 2·2%. | Developed diphtheria. |
| | 10 J. M. | 10 | Sore-throat and blood in urine (second attack). | " | Alb. ++. Many R.B.C.'s. Some casts. | 41 | — | Recovered completely. |
| | 11 L. D. | 3 9/12 | Blood in urine 14 days after removal of tonsils and adenoids. | " | Blood ++. Trace alb. | 22 | — | Recovered rapidly. |
| | 12 B. L. | 3 3/12 | Swollen cervical glands. 3 weeks. Blood in urine 3 days. | " | Alb. ++. R.B.C.'s ++++. | — | — | Tonsillectomy followed by disappearance of blood. |
| | 13 C. P. | 3 7/12 | Urine dark. 2 weeks. Ear-ache with discharge. | Tonsillitis. Otitis media. | Trace alb. | 41 | Normal. 3·9%. | Attack was almost over on admission. |
| 1925 (6 mths.) | 14 K. A. | 8 8/12 | 4 attacks of hæmaturia with ear discharge and high temperature. | Otitis media. | Blood ++. Alb. +. | 37 | Normal. 3·1%. | Cleared up following operation for mastoid. |
| | 15 K. B. | 4 9/12 | Listless; loss of appetite; blood in urine. | Tonsillitis. Otitis media. | Blood +. Alb. +. | 178 | — | Blood and albumin rapidly disappeared. |
| | 16 A. S. | 7 10/12 | Ear-ache. 2–3 weeks. Blood in urine 1 week. Ear discharge 3 days. | " | Blood +++. Alb. trace. | 45 | — | Blood gradually disappeared from urine. |
| | 17 S. T. | 5 6/12 | Ear-ache and discharge 1 month. Blood in urine. 14 days. | Otitis media. | Blood ++. Alb. +. | 37 | Normal. 3·6%. | Ear discharge ceased and blood disappeared. |
| | 18 S. K. | 9 9/12 | Parotid abscess. Hæmaturia while in hospital. | Parotid abscess. | Blood +. Alb. ++. | 39 | — | Pus evacuated and blood disappeared next day. |
| | 19 B. B. | 8 | Sore-throat 3 days. Blood in urine. | Tonsillitis. | Blood +++. Alb. +. | 41 | — | Sent away as (?) S.F.; diagnosis not confirmed. Blood cleared on re-admission. |
| | 20 E. D. | 2 | Ear-ache 1 week. Blood in urine 2 days. | " | Blood ++. Alb. trace. | — | — | Tonsillectomy and blood disappeared. |
| | 21 D. O. | 7 10/12 | Blood in urine 3 weeks. | " | Blood trace. Alb. trace. Sev. casts. | 37 | — | Tonsillectomy and all subsided. |
| | 22 P. K. | 7 | Sore-throat. Ear discharge 3 days. Hæmaturia developed while in hospital. | Tonsillitis. Otitis media. | Blood ++. Alb. ++. | — | — | |

*Discussion.*

In the cases set out in Table II. it will be seen that it is not uncommon for the blood to disappear rapidly from the urine after tonsillectomy—for example, as in Cases 4, 7, 12, 20, and 21—or after the extraction of carious teeth, as in Case 5. In Case 7 the development of a boil was associated with the presence of additional blood in the urine, while in Case 18 the evacuation of a parotid abscess led to a disappearance of the blood from the urine by the next day.

A brief review of certain of the more important papers dealing with this form of renal inflammation will serve as an introduction to a short discussion of its pathology. R. S. Allison,[1] in some observations on 12 cases of acute nephritis in children grouped together six whose urine contained blood and albumin in large quantities, and remarked upon the sudden appearance of the hæmaturia in certain of these cases, which he suggested might be due to infarction. In the cases with this massive hæmaturia the blood disappeared from the urine as suddenly as it had appeared. This author did not differentiate these cases further, but they were in all probability of the acute hæmorrhagic type, which we have under discussion. Hill[2] believes that the vast majority of cases of acute nephritis in children are of infectious origin, and that more cases are secondary to tonsillitis than to scarlet fever. He

classifies acute nephritis in children as acute hæmorrhagic and acute exudative, and in another paper [3] states that the hæmorrhagic type is the commoner in children. He comments on the bright red colour of the urine often seen in these cases and on the presence of only a few casts. In his cases the nephritis usually made its appearance a few days after an attack of tonsillitis, the commonest exciting cause, and lasted from 4 to 12 weeks. James [4] also makes a division of acute nephritis in children into the hæmorrhagic and exudative types. Schwartz and Kohn [5] refer to the hæmorrhagic variety and also to the more commonly recognised form which they call "nephritis parenchymatosa." In this type they found a low protein content of the blood-serum with a reversal of the normal relation of serum albumin and serum globulin. Whether this occurs or not in the hæmorrhagic type does not appear to have been determined and is an interesting point. Clausen [6] divides acute nephritis into hæmorrhagic or glomerular and parenchymatous or tubular, but this would seem to group the hæmorrhagic cases with the ordinary acute glomerular nephritis which may occur as a complication of scarlet fever for example. He draws attention to the possibility of staphylococcal infection and also to the importance of infection of the paranasal sinuses as a cause of nephritis. In discussing the prognosis of acute nephritis Osman [7] considers that it is more favourable in the hæmorrhagic cases, and states that "it appears to be almost an axiom that in acute nephritis the more the blood the better the outlook both immediate and remote." Lastly, mention must be made of a rare and curious condition described by Guthrie [8] as idiopathic or congenital, hereditary and family hæmaturia, in which blood may be present in the urine over long periods and increase in quantity in paroxysmal attacks associated with slight pyrexia. At times the urine may have the appearance of "arterial blood" and the quantity of blood passed exceeds that seen in any form of nephritis. Such cases might be mistaken for examples of hæmorrhagic nephritis, but a knowledge of the family history would prevent such an error occurring.

### *Pathology.*

Since cases of hæmorrhagic nephritis seldom come to autopsy there is no certain information as to the post-mortem appearances of the kidney in this condition. Acute congestion of the kidneys is known to occur in connexion with various inflammatory lesions, especially of a local character, and at the other extreme there is a type of embolic nephritis described by Muir [9] as a "distinct type of nephritis which is not uncommon in cases of subacute endocarditis caused by streptococci, especially the *Streptococcus viridans*." In this condition "hæmaturia is not uncommon," and sections of the kidneys frequently show blood in the tubules while there is also a patchy affection of the glomeruli. The same author points out that in puerperal eclampsia as a result of toxic action on the renal epithelium it is not unusual to get a condition of multiple infarction of the kidneys associated with hæmaturia. It is conceivable, therefore, that in acute hæmorrhagic nephritis in children there is a similar condition of multiple emboli of streptococcal origin without any widespread inflammation of the kidney substance. If the infection is prolonged it is probable that the usual glomerulonephritis or catarrhal nephritis may supervene.

TABLE III.—*Mortality Rate in 87 Cases of Nephritis.*

| | Cases. | Deaths. |
|---|---|---|
| Acute parenchymatous nephritis .. | 23 .... | 6 |
| Acute hæmorrhagic nephritis .. .. | 22 .... | — |
| Chronic parenchymatous nephritis .. | 23 .... | 2 |
| Chronic interstitial nephritis .. .. | 19 .... | 10 |

### *Prognosis.*

The prognosis in acute hæmorrhagic nephritis appears to be good. Hill, in a paper already quoted, states that death due to this type of nephritis is unknown, and none of the 22 cases here described were fatal. The mortality of the 87 cases of nephritis analysed for the purpose of this paper is shown in Table III. This only refers to cases where death occurred in hospital.

We have recently followed up the 22 cases of hæmorrhagic nephritis, and carried out a re-examination of most of the earlier ones. The results of this are shown in Table IV. The period elapsed between the onset of the nephritis and the time of re-examination varied from four months to three years, and was in most cases over a year.

TABLE IV.

| No. of case. | Urine. | Urea-concentration test: Maximum. | Blood-urea, mg. per 100 c.cm. | Cardio-vascular system.* |
|---|---|---|---|---|
| 1 | Alb. + + R.B.C.'s + + + Granular casts. | Poor. 1·9 % | 95 | B.P. 105 |
| 2 | No alb. No R.B.C.'s. | Good. 3·4 % | — | B.P. 100 |
| 4 | Alb. slight trace. No R.B.C.'s. | Good. 3·1 % | — | B.P. 105 |
| 5 | Alb. v. slight trace. No R.B.C.'s. | — | 31 | B.P. 100 |
| 6 | Alb. v. slight trace. No R.B.C.'s. | Good. 3·5 % | — | B.P. 100. |
| 8 | Alb. trace. No R.B.C.'s. | Good. 4·3 % | — | B.P. 90. |
| 9 | Alb. v. slight trace. No R.B.C.'s. | 2·9 % — | — | B.P. 100. |
| 10 | Alb. + R.B.C.'s. + | Border line. 2·1 % | — | B.P. 125. |
| 11 | No alb. No R.B.C.'s. | Good. 3·9 % | — | B.P. 100. |
| 12 | Alb. v. slight trace. No R.B.C.'s. | Good. 3·1 % | — | B.P. 85. |
| 13 | No alb. No R.B.C.'s. | Good. 3·5 % | — | B.P. 90. |
| 14 | Alb. trace. R.B.C.'s + + No casts. | Good. 3·9 % | — | B.P. 112. |

* Heart normal in each case.

*Progress.*—Case 1: No other illness. Urine always red. Cases 2 to 14: No return of symptoms.

Case 1 shows that on clinical evidence it is sometimes possible to be misled about the diagnosis of this disease from the other forms of nephritis. With a "poor" urea concentration (1·9), and a blood-urea of 95 mg. per 100 c.cm., it is almost certain that interstitial changes are developing in a chronic form of nephritis. Case 10 is also classified on re-examination as doubtful. On the other hand, the prognosis in acute hæmorrhagic nephritis does not appear to be quite so good with regard to complete recovery of the kidneys as some authorities assert, for in only three of the cases (2, 11, 13) was the urine quite free from albumin, while in seven others there was a trace. A trace of albumin, unaccompanied by cells or casts, is not uncommon in healthy children, and is regarded as of no importance. But is it permissible to ignore the slight albuminuria which persisted in these seven cases? Our present opinion is that it may be safely disregarded, except in those instances where it is accompanied by an abnormal quantity of leucocytes and epithelial cells in the centrifugalised deposit. The urine in six of the seven cases referred to above still contained an abnormal number of cells. The patients re-examined had all kept well and had had no return of symptoms, except in Case 1, in which the urine remained "red." Cases 3 and 7 were not seen, but were reported to be in excellent health.

### *Conclusions.*

1. Acute nephritis in children can be separated into two main types. To one of these the term acute hæmorrhagic is given; the other is the more widely known variety, variously called "parenchymatous" or "exudative." 2. Acute hæmorrhagic nephritis is comparatively common. Twenty-two cases were admitted in three years to the Great Ormond-street Hospital. 3. From a study of these 22 cases this condition has been found to possess certain definite clinical features, which enable it to be differentiated. 4. Pathologically it is probably a form of streptococcal embolism of the kidneys, originating from some definite focus of sepsis elsewhere in the body. 5. The prognosis

is much better than in the other forms of acute nephritis, and as a rule no chronic inflammation of the kidneys results.

We are greatly indebted to the physicians of the Hospital for Sick Children for permission to publish their cases in this paper, and to Dr. G. A. Harrison who undertook the biochemical examinations.

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# Clinical and Laboratory Notes.

## A NEW OPERATION FOR OPPONENS PARALYSIS OF THE THUMB.

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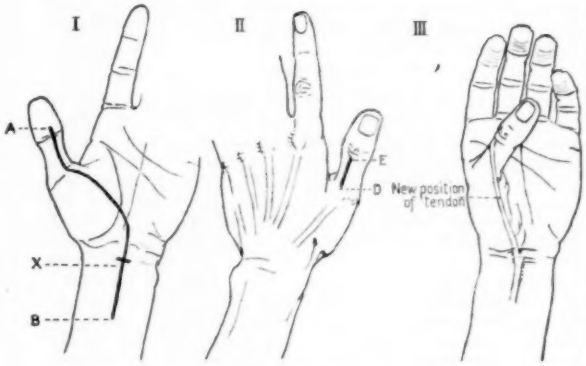
THIS operation was devised by me some years ago to improve the function of a thumb in which opposition was impossible, either on account of irreparable damage to the median nerve or permanent paralysis due to anterior poliomyelitis. The operation is, in brief, a transposition of the tendon of the flexor longus pollicis performed in the following manner.

An incision, A B, is made, extending from the ball of the thumb to several inches above the transverse




creases of the wrist, and the tendon isolated (Fig. I.). A second incision, E D, is then made over the dorsal aspect of the first phalanx of the thumb, well to the ulnar side (Fig. II.). The flap, A B, is then freely and carefully undercut towards the radial border of the thenar eminence. The tendon is then divided at the wrist at X and the distal end passed subcutaneously round the ulnar border of the first phalanx and out through the incision E D. Next the tendon is passed back again through this incision, passing obliquely across the tendon of the extensor longus pollicis, and comes to lie subcutaneously on the thenar eminence. The fashioning of the subcutaneous tunnel is much facilitated by the use of the old-fashioned hernia needle on a handle (Fig. III.). The incision E D is then sewn up; also incision A B with the exception of the part near X. At this stage the thumb is held in opposition with the terminal joint of the thumb extended. The distal and proximal ends of the tendon are then united at X with chromicised catgut (20-day) and the skin closed (Fig. III.). The thumb is kept in opposition by means of plaster-of-Paris, a window being cut for the wound A B. Graduated faradic stimulation of the flexor longus pollicis is commenced on the fourth day, and the stitches are removed on the tenth. Within two to three months strong sustained voluntary opposition of the thumb is effected by the transposed tendon.

The satisfactory results obtained in some eight or nine cases have encouraged me to continue to perform the operation, and to publish this short account of it. The drawings were kindly prepared for me by Mr. George F. Bird.

## A CASE OF EUCALYPTUS POISONING.

BY L. M. CHESNEY, M.B., CH.B. EDIN., D.P.H. DURH.

THE case of eucalyptus poisoning recorded below is interesting as compared with the case first mentioned.

During the war a patient suffering from diarrhœa was accidentally given a dose of eucalyptus and castor oil, a mixture kept for superficial wounds, burns, &c. About four hours after the dose had been taken the person who had given it came to me to ask if eucalyptus were poisonous. I looked up Martindale's "Extra Pharmacopœia" and found a reference to a case in which 1 drachm had caused violent vomiting and diarrhœa, and another in which 6 drachms had caused similar symptoms; the ages of the patients were not given. As the patient in hospital had had about 4 drachms I felt a little anxious, but no symptoms of poisoning had developed though four hours had elapsed. It seemed rather late to use a stomach-tube, so we did nothing, with the happy result that the patient was none the worse, and was quite well the next day.

*Account of the Case.*

A short time ago I was attending a patient who had a bad cold, and was also very constipated. I ordered a dose of castor oil, to be taken early the next morning. She also told me that she had fallen and hurt her knee. I cleaned up the wound and ordered a mixture of eucalyptus and castor oil, 15 g. each, for future use; and jokingly said, as I left the house, "Don't drink the eucalyptus mixture and put the castor oil on your knee." About 7.30 the next morning I was sent for because the patient had taken the eucalyptus mixture about 6.30 A.M. She was quite well, had no sickness or other symptoms, and in view of the other case, I thought she would be all right. About 10 A.M. I was sent for again, and found her in a peculiar comatose condition. She had been sick three times, and had apparently brought up most of the oil. She had a very little pain in the right side of the abdomen, none over the epigastrium, but could hardly be roused to answer questions; her pulse was barely perceptible, and her face was ashy grey, pupils equal and reacting to light, not contracted. I gave camphor hypodermically, hot bottle for her feet, and her pulse improved. A tumbler of warm water was retained and she was not feeling sick. I was anxious about her for an hour, as her pulse continued to be very frequent and feeble, but, after two more hypodermics of camphor, it got much better, and her mental condition improved. About noon I gave a cup of hot coffee, with 2 gr. of cit. caffeine, and ordered an enema.

By 4 P.M. the patient was very much better, there had been no more sickness, the bowels had acted twice, no smell of eucalyptus in the fæces, though the patient's breath still smelt of it, the pulse was fair, 98, regular, but she felt sleepy, and, as she said, "far away." When I saw her at 9 P.M. she had quite recovered.

It seems strange, not that eucalyptus should make a person sick, or even poison him, but that anyone should give, or take, without noticing, a drug with so strong a smell. It is also remarkable that in neither case was there any intestinal irritation, a symptom which is apparently generally present in cases of eucalyptus poisoning.

Palma de Majorca, Spain.

HASTINGS AS A HEALTH RESORT.—The Hastings Town Council, having taken over the White Rock baths on the sea front, intends to remodel them on modern medical lines, and the medical men of the district have collectively laid recommendations before the Council. It will probably be considered necessary to make further inquiries into conditions existing in other spas, but in the meantime the turkish baths are being brought up to date as an initial step.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### COMBINED MEETINGS OF THE SECTIONS OF OPHTHALMOLOGY AND LARYNGOLOGY.

#### OPTIC NEURITIS IN ITS RELATION TO SINUSITIS.

AT a combined meeting of these Sections held on Jan. 8th, Sir ARNOLD LAWSON presiding, Dr. A. LOGAN TURNER (President of the Royal College of Surgeons, Edinburgh) introduced the subject from

*The Laryngological Standpoint.*

A conjoint meeting of the Scottish Society of Otology and Laryngology and the Scottish Ophthalmological Club decided, he said, in March, 1924, to investigate a series of cases of retrobulbar neuritis in regard to the condition of the eyes and the nasal and accessory cavities, and report on them in two years' time, and he was able to give some of the results in the Edinburgh centre so far. The ophthalmological work was done there by Dr. J. V. Paterson, Dr. A. H. Sinclair, Dr. H. M. Traquair, Dr. E. H. Cameron, and Dr. Laura M. Ligertwood, the nasal work having been contributed by Dr. J. S. Fraser and Dr. W. T. Gardiner. Dr. Turner's concern in the present discussion was to speak of 28 definite cases in their rhinological aspect. They all belonged to the retrobulbar type of optic neuritis, and the natural tendency was for the vision to recover spontaneously. This was the end-result in most of the cases examined. Some operators, he said, showed an excess of zeal in interfering with the nose and sinuses in these cases, under the belief that "latent sinusitis" was the cause of many of them. In the cases under review there was an almost complete absence of any subjective nasal symptom. In two a slight unilateral nasal obstruction was found to be due to a septal deflection, while in none of the cases did rhinoscopic examination reveal the signs which the rhinologist regarded as evidence of suppurative sinus disease. In 13 of the cases the nasal accessory sinuses were normal. In seven there was a high septal deflection to the side of the affected eye, while two showed some cloudiness of the sphenoidal sinus in the skiagram. In five cases a high septal deflection was associated with œdema of the middle turbinal on the same side. In three of the patients the nose was not examined.

Dr. Turner concluded with a general summary of the facts gleaned. In none of the 25 cases nasally examined was there clinical evidence of suppurative sinus disease, and in the six cases in which posterior sinuses were opened no pus or secretion was found. In these six the cavities were healthy in three, the remainder showing slight catarrhal changes and some evidence of congestion of the mucosa. In two of the cases a septal operation was carried out. In all the cases the vision returned to normal, or nearly normal. In three of the patients septic teeth were a possible causal factor, and after they had been extracted vision was restored. Dr. Turner said that in estimating the effect on the vision of surgical interference with the sinus cavities, due regard must be had to the fact that in these cases the tendency was towards spontaneous cure, and the operation might synchronise with the time of commencing natural resolution. A further collective investigation on the subject was needed.

*The Ophthalmological Standpoint.*

Mr. M. S. MAYOU presented the ophthalmological aspect. He said that the forms of optic neuritis which were associated with nasal disease were of two main groups having very different clinical and pathological characteristics. The first were those of papillœdema due to distension of the optic nerve sheath with fluid, causing venous obstruction by pressure on the central retinal vein as it entered the globe. There was then a slow steady failure of vision, with very marked swelling of the nerve head, often resulting in choked disc. The second group were those of retrobulbar neuritis, or, as he preferred to call the condition, interstitial neuritis; and in this condition there was an inflammatory patch, or patches, into the trabeculæ of the optic nerve, causing direct pressure on the nerve-fibres and interference with their function. The only cause of the disease of which there existed positive evidence was disseminated sclerosis, but a further cause might be infection conveyed by the blood stream from such a focus as a suppurating sinus in the nose. All the physical signs of retrobulbar neuritis could be caused by pressure on the nerve exerted by a tumour, fracture of the sphenoid, or inflammatory swelling in the vicinity of the optic foramen without the nerve substance being involved.

With regard to the relationship of nasal sinus trouble to optic neuritis, papillœdema might result from a subacute meningitis following a suppurative sphenoidal sinus opening beneath the dura, or a spreading necrosis of cranial bones as a sequel of disease of nasal bones or of operating on the nose. Rarely it might follow thrombosis of the cavernous sinus. The papillœdematous type of optic neuritis in association with meningeal infection and intracranial abscess was generally admitted; it was in the relation of the retrobulbar type to nasal disease that the meeting was particularly interested. This type of neuritis had a strong tendency to recover, whether treatment was given or not. Perhaps more light might be thrown on the association of the two diseases if a methodical examination of the fields of vision were made in a series of cases of sphenoidal sinus disease. F. C. Wallis examined 45 cases of sinus disease and found general contraction in all, central scotoma five times, optic neuritis in three cases. Mr. Mayou had had a considerable number of cases of retrobulbar neuritis examined by rhinologists, but they had never yet found one in which the sphenoidal sinus was infected. But in three of his cases the antrum was full of pus, and in one the ethmoid was infected; all four recovered after those areas were dealt with. He did not doubt the association of the two diseases, but considered that it occurred only rarely.

*Discussion.*

Mr. E. D. D. DAVIS gave the results of a study of the notes of 76 cases of retrobulbar neuritis which had been sent to him for examination of the nose in order to determine the cause of the eye condition. These patients were kept under observation for long periods and were followed up. In the 76, nasal disease could be excluded in 30, in 14 there was disseminated sclerosis, in nine syphilis, in seven the teeth were septic, and in only seven was there manifest sinus suppuration. The definite diagnosis of disseminated sclerosis was very difficult, as retrobulbar neuritis was often the first sign of the disease, and might be the only one for many years. The lapse of time and the aid of the neurologist, however, settled the problem. The neuritis was unilateral in nine, bilateral in five. Mr. Davis discussed the anatomical relations of the sphenoid and posterior ethmoid cells to the optic nerve, and said that optic neuritis arising from inflammation of the nasal sinuses could be produced in the following ways: direct extension through continuity of structure, thrombosis of venous sinuses or vessels, acute nasal catarrh, toxæmia, or bacteriæmia. Of the cases which had nasal sinus suppuration, operation in three produced a dramatically rapid improvement in the sight; in the other two optic atrophy prevented such a result. Suppuration of the antrum of nasal origin was practically always accompanied by the involvement of other sinuses such as the frontal and ethmoidal. But when antral suppuration arose from the teeth this cavity alone was involved, and retrobulbar neuritis had never been recorded in the numerous dental cases which he had had under care. A careful study of charts of fields of vision of nasal cases did not show such definite characteristics as to be relied on as aids to diagnosis. Optic neuritis arising from septic venous

thrombosis was rare, and in these cases the acuteness of the illness overshadowed the symptoms of blindness. He had not seen retrobulbar neuritis occurring in the course of acute nasal catarrh. If retrobulbar neuritis in a case was increasing and every other cause for the condition had been eliminated, or there was any suspicion of sinus disease, it was justifiable to remove the middle turbinal and explore the ethmoidal and sphenoidal cells; the operative risk in skilled hands was negligible.

Mr. R. FOSTER MOORE spoke, from the ophthalmological standpoint, on cases of retrobulbar neuritis, to which group he felt sure some of Mr. Davis's cases did not properly belong. The following were the outstanding characteristics of the disease: rapid loss of central vision, some pain on globe movement, or when it was pressed back, an optic disc only slightly abnormal, a pupil which contracted to light but could not maintain that contraction, and a marked tendency to recovery. It occurred mostly between the ages of 20 and 40. Infection of the paranasal sinuses was one of the rarest causes of retrobulbar neuritis. In order to facilitate the most complete examination of the cases he always admitted them as in-patients, so that all specialists concerned could do their part. He believed that in course of time a considerable proportion of Mr. Davis's 30 cases in which the cause was not ascertained would develop disseminated sclerosis. Apart from the spread of a suppurative process from surrounding structures which had caused orbital abscess or thrombosis of vessels, he had never seen a case of retrobulbar neuritis which he regarded as due to paranasal disease.

Sir STCLAIR THOMSON said he had had but few cases of the kind now being discussed, but sometimes a small number of cases carefully studied in the way Mr. Davis had shown were better pointers than large collections. A typical case of his own was that of a lady blind in one eye who was shown just before the meeting by Mr. R. A. Greeves. She had had no symptoms pointing to sinus disease, but he opened the sphenoid and she improved somewhat. Later he opened the posterior ethmoidal cells, which were the seat of cystic degeneration. Further improvement followed this, and the patient was now quite well. Of two others one recovered equally well after operation on sinuses, but the other still remained blind.

Mr. E. TREACHER COLLINS said the first case mentioned by Sir StClair Thomson had marked papillitis, but could not be classed as retrobulbar neuritis. Following the operations on the sinuses there could be no doubt about the improvement, both in the vision, the subsidence of the swelling, and the disappearance of the retinal exudation. He had not seen a case in which retrobulbar neuritis could be attributed to sinus disease.

Mr. F. A. WILLIAMSON-NOBLE commented on the fact that all cases of retrobulbar neuritis had an optic foramen smaller than normal, suggesting that one explanation of the condition might be pressure on the nerve. In some intractable cases it might be possible to reach the foramen by the subperiosteal route and enlarge it.

Dr. P. WATSON-WILLIAMS (Bristol) said that though many cases of the condition under discussion showed a tendency to recover, a considerable number proceeded to optic atrophy. Hence no stone should be left unturned to save a patient from that catastrophe. Each case should have a careful ophthalmological examination before operation was undertaken. It seemed to be the cases in which there was an absence of marked evidence of suppuration that were more likely to have toxæmic conditions. Recently he published in THE LANCET, 1925, ii., 858, two cases showing how sinus suppuration could be overlooked. The ethmoidal cells were so often involved that they seemed to lend themselves specially to lymphatic absorption involving the optic nerve sheath.

Dr. J. A. GIBB (Maidstone) spoke of five definite cases of retrobulbar neuritis in which the ethmoidal cells were infected, and in which operation on those cells resulted in complete recovery. In those patients the optic neuritis had been in existence some weeks. In another case of double optic neuritis and retinitis the urine was loaded with albumin. It cleared up and sight was restored. In a further case syphilis was suspected, and opening the sphenoid gave no visual improvement; but thorough opening of the anterior ethmoidal cells and burring of the maxillary antrum improved the vision from 6/60 to 6/12.

Mr. D. LEIGHTON DAVIES (Cardiff) said that in his experience visible changes in the optic nerve in cases of nasal sinus disease were relatively uncommon; neither was retrobulbar neuritis of the clinical type common. In most chronic cases he found that the visual fields showed definite changes, either a peripheral or a central enlargement of the blind spot, or various forms of scotoma. The most common changes were those involving contraction of the periphery of the fields. It was concentric, and concerned white as well as colour. In severe cases the fields tended to become progressively smaller until the sinuses had been opened and drained. As these cases were always bilateral the suggestion was that the condition was toxæmic.

Mr. H. M. TRAQUAIR (Edinburgh) said he had never seen a case of retrobulbar neuritis which could be traced to nasal sinus disease, except in cases in which the nasal sinus was obviously infected. There was a tendency towards some vagueness in the diagnosis of this disease, to assume that any kind of visual defect which was characterised by central scotoma and no visible macular change or nerve change to account for the scotoma, was due to an actual inflammatory condition of the optic nerve. It was necessary, he said, carefully to dissociate pressure conditions from inflammatory conditions. It was important to study the whole patient before deciding that he was suffering from retrobulbar neuritis in the sense of an inflammatory condition of the optic nerve. He and his colleagues had found that cases of optic atrophy due to retrobulbar neuritis were quite uncommon. When the disease was bilateral there was a greater tendency to recovery than when it was unilateral, and this applied specially to older persons. And he did not think any particular changes in the fields of vision could be fixed upon as peculiar to retrobulbar neuritis following on sinus disease, but general investigation of the patient might help such a classification. When the disc was normal and central vision good, and there was no orientation difficulty, contraction of visual fields should be ascribed to organic disease of the optic nerve only very cautiously.

Dr. JOBSON HORNE said that the nasal conditions and the ocular conditions which were under discussion might be quite independent of one another. Several cases had been known in which blindness followed treatment of sphenoidal sinus disease. Many cases cleared up completely after simple nasal treatment, resection of the turbinal body and the blood-letting incidental to it. He agreed with what had been said by Dr. Turner and Mr. Moore.

Mr. GRAY CLEGG (Manchester) remarked that in no case of retrobulbar neuritis had he felt satisfied that it had been due to disease of the posterior ethmoidal or the sphenoidal sinus.

Mr. A. L. WHITEHEAD (Leeds) referred to the opportunities he had had of doing both nasal and eye work, and said that in only two of his cases of optic neuritis and papillœdema, with retinal changes, could any connexion be established with sinus suppuration, and in both those the latter was very gross. Opening up of these cells was followed by some improvement of vision, limited, however, by atrophic changes in the retina. Many of the cases recorded at this meeting might equally have been due to toxic infection which had spread via the blood or lymphatics.

Before the discussion Mr. R. AFFLECK GREEVES showed a patient, a middle-aged woman, who had retrobulbar neuritis which remained practically unchanged for six months. Then Sir StClair Thomson explored the sphenoidal sinus, and this was followed by an improvement in the vision.

A relapse, however, occurred, and therefore the ethmoids were explored and drained. Following this the pupil became normal in size, though it had no light reaction, and vision became 6/5. Bacteriological examination of the material revealed the influenza bacillus in pure culture. There had never been any cycloplegia.—Sir STCLAIR THOMSON, who saw the case from the beginning, related the history, stating that the patient definitely attributed her improvement to the second operation. The ethmoid showed cystic degeneration with pus.

## COMBINED SECTIONS OF MEDICINE AND THERAPEUTICS.

### TREATMENT OF PULMONARY TUBERCULOSIS WITH SANOCRYSIN.

A COMBINED meeting of these Sections was held on Jan. 12th, Dr. GEORGE GRAHAM, President of the Section of Therapeutics, occupying the chair, when Prof. T. R. ELLIOTT opened a discussion on this subject by reading the paper which appears on p. 126.

Prof. LYLE CUMMINS spoke of 25 cases which had been treated by Prof. Elliott and himself, or were still under treatment, but paid special attention to the six cases he put under this treatment six months or longer ago, on account of the interest borne by their subsequent history. In the four cases in which the result seemed very favourable and decided improvement followed the treatment there had been a relapse. It was some time before the remedy caused an improvement in the lesions sufficient to show on the skiagram. In the first of the patients there was a fall in the bodyweight during treatment, but subsequently there was an increase week by week. When she left the sanatorium after six weeks—before she was advised to—she reached 11 st., a greater weight than she had ever before achieved. But she returned to unfavourable home conditions and had a relapse, and last April returned to the sanatorium where she still remained. He intended to give her a fresh course of sanocrysin. He showed skiagrams and charts on the screen of a series of cases, the former making evident the degree of cavitation present, and the latter the temperature and weight variations. He had also treated with sanocrysin a very severe case of pneumonia, with high pyrexia. It did no good, but on the other hand no trace of harm could be found as a result of its use. It was stopped because rashes and albuminuria coincided with its use. This patient died three months after the new substance was stopped. In the favourable cases of pulmonary tuberculosis the improvement following this treatment could scarcely be denied; it was very definite and rapid. Still, all had relapsed, from the standpoint of renewing positive sputum. A second course stopped the sputum and bacilli were no longer found. He thought that in order to get results it was necessary to give a rapid course. Whether sanocrysin killed the tubercle bacilli in the body or not, it certainly led to their destruction. It did not sterilise in the doses now given in a fairly advanced case.

Prof. F. R. FRASER spoke of the 15 cases of tuberculosis which had been treated by Dr. Harris and himself. He said that at first they used the dosages which were recommended by the Scandinavian workers, but found it advisable to depart from that scheme. The earliest case was that of a hospital porter, aged 30, who had had hæmatemesis eight years before. When seen he had tubercle bacilli in his sputum and signs of the disease were evident in his lungs, while he also had clubbing of the fingers. The first dose was ½ g., and this did not produce any reaction. Three days later 1 g. was given and shortly after that he had nausea and vomiting, and on the second day after the injection the temperature began to rise, and there was a great increase in the sputum. On the fourth day after injection the temperature rose to 104° F. and a "measly" eruption appeared and later spread all over the body continuing until the tenth day. Albumin appeared in the urine when the treatment began, and on the fifth day after the second injection it increased greatly, and the man was very ill; he was eating nothing, he vomited, and complained of a strong metallic taste in his mouth. There was also a thick fur over the tongue, fauces, and soft palate. On the eleventh day after the injection he seemed to have recovered from these effects, but during the treatment he had lost 10½ lb. On the day following he was given another dose of 1 g., and this was followed by even more reaction; so great was the collapse that he was treated by serum. This febrile reaction lasted a week, and he had not sufficiently recovered for further treatment until the twenty-third day after the injection, and he had now lost 23 lb. The next dose caused a short sharp reaction, during which he again showed collapse and had to have further serum. Subsequent doses gave no febrile reaction, but he always had anorexia, increased albuminuria, and the metallic taste in the mouth. At the end of the course of injections the physical signs were but little altered, except that there were now no râles, even on coughing, and no tubercle bacilli were detectable in his sputum. Skiagrams showed a clearing of the shadows at the right apex, and the appearance of a cavity there which had not been seen before. Shortly after he went to Frimley Sanatorium the râles returned, and tubercle bacilli were again found in the sputum. He had now been again working six months as a hospital porter, and did not seem any worse for his experiences with the treatment It was decided by the speaker and his colleagues that such severe reactions must be avoided in future, as they were not likely to be compensated by any beneficial effect of the treatment. Probably the undesirable results were due to heavy metallic poisoning. Dosage was now very slowly graduated, and the treatment was stopped as soon as a single dose of 1 g. had been reached. The effects of the serum were so disappointing that they decided not to produce sufficient reaction to require its use. He quoted a series of much more favourable cases in which this precaution was adopted; commencing with a dose of ½ g., and as there was no reaction, ¾ g. The latter was followed by a slight reaction, therefore the next dose was ½ g. This patient had no marked loss of weight and no severe reaction. No succeeding dose was given until five or seven days after the effects of the previous one had passed off. Finally, he said there seemed to be clear evidence that sanocrysin had some action so that recent exudative lesions in the lung were cleared more rapidly than by any other form of treatment,

Dr. J. TATTERSALL referred to ten cases which he had treated with the remedy, four of them being still under treatment. His general run of results were distinctly favourable, but most of the cases definitely lost weight while under treatment.

Dr. GEORGE MARSHALL made some general remarks on the treatment following on his visit to Denmark, where he saw 200 cases under treatment. In that country there were now only one or two physicians who were using the large doses. The preparation was especially dangerous to the patient who had had the disease only a short time; he did not seem able to resist the reaction, probably because he had not produced the antitoxin to neutralise the toxins set free by the injection. He had arrived at the conclusion that the serum did not prevent bad results. He detailed a few results of the treatment in his own experience, mostly favourable.

Dr. F. R. G. HEAF detailed his results of the treatment in 24 cases in Warwickshire sanatorium, starting with a dose of only 0·1 g. of sanocrysin, and going on to 0·25, 0·5, and 0·75 before reaching a 1 g. dose. His results were favourable.

Sir ALMROTH WRIGHT spoke of the disappointment which sanocrysin had been. It had been claimed as a drug which directly attacked the tubercle bacillus and killed it. If that were so it could be given in a big dose, short of killing the patient, and it would kill off most of the microbes. It was brought in as a method of chemotherapy, but it was not that. It attacked the organs of the body also. In his

laboratory experiments were made among the workers by putting the tubercle bacillus into their own blood. The tubercle bacillus grew enormously in the normal person's blood, so that after a week there were very large colonies. It was easy to take the blood and add sanocrysin to it. One drachm in the blood had no effect on the tubercle bacillus. A dose of 1 in 250 could be given and yet the tubercle bacillus would go on growing inside the blood. He concluded that the preparation had no effect on tubercle bacilli, and that he regarded as a calamity. Poisoning certainly occurred from it because it attacked many tissues of the body, but he was prepared to believe that these reactions exerted a favourable influence in some cases; indeed, many other reactions did the same. Experiments done with rabbits showed that the material had no effect on the tubercle bacilli. In the patients spoken of by others the bacilli when not found in the sputum might have been carried to other parts of the body because they subsequently returned to the sputum.

Prof. ELLIOTT and Prof. CUMMINS briefly replied.

## SECTION OF SURGERY.

A MEETING of this Section was held on Jan. 6th, Sir LENTHAL CHEATLE, the President, occupying the chair, when Prof. C. A. PANNETT opened a discussion on the

*Surgical Treatment of Duodenal Ulcer*

by reading the paper which appeared in our last issue.

The PRESIDENT said that if he were in the unit working under Prof. Pannett he would ask that he might do post-mortem examinations on hundreds of cases, whatever might have been the cause of death, in the hope of discovering very early duodenal and very early gastric ulcers, as that was a form of spade-work which really needed to be done. With regard to the possible cause of these ulcers, in the examination of animals which had died and happened to have been suffering from duodenal or gastric ulcer, the very small early ulcers were found to contain spirochætes; whether they caused the ulcers was a matter which required to be worked out. Only very early investigation would supply the solution. At present he was satisfied in these cases with the operation of posterior gastro-jejunostomy, and believed the main factor in the success of it was to make the stomach opening 4 in. in length; 2½ in. was too small, for it allowed half the stomach contents to pass through the duodenum and half into the jejunum. With the larger incision very little passed into the duodenum.

Mr. A. J. WALTON did not agree that only a small proportion of cases of duodenal ulcer required surgical treatment; no proof had yet been advanced that medical means had cured or definitely improved actual ulcer in that situation. And certainly one should never wait for hæmorrhage to occur before undertaking surgical measures, especially as quite a number of these cases died from hæmorrhage, which was more fatal in duodenal than in gastric ulcer. Sometimes the surgeon was not called in until hæmorrhage had occurred, but an attempt at a diagnosis should be made as early as possible. He believed high acidity had much to do with causing these ulcers. He had never yet seen a case of pure jejunal ulcer. Post-operative ulcers started at the junction and were essentially gastro-jejunal. In 1062 operations on stomach and duodenum, pyloric and duodenal ulcers numbered 437. In order to get a correct impression as to results it was essential to have a "follow-up" department and continually to review the cases. He had had such a department at the hospital since 1917 and that enabled him to be very definite when he spoke of results. Among patients traced for two years or more after operation the cases he had lost amounted to about 3 per cent. He agreed that simple gastro-enterostomy might be followed by hæmorrhage or by perforation at the seat of the ulcer, and because of that he had advocated that this operation should be accompanied by bedding or suturing of the ulcer.

With regard to mortality, he agreed that the usual conditions in a draughty hospital ward were the worst possible for these cases. Some hospitals had post-operative wards, and if these were to become general he was satisfied there would be an improvement in the mortality statistics of these cases as a whole. He considered that the mortality after gastro-enterostomy should not exceed 2 per cent. He had found that 90 per cent. of the cases after operation were really cured, and by that he meant that a man who worked hard had no reminder that he had a stomach and could eat anything after having gone six months without medical treatment. The big danger was that of gastro-jejunal ulcer. In his 437 pyloric and duodenal ulcers, gastro-jejunal ulcer occurred in 2·5 per cent. He thought faulty technique was a considerable factor in mortality figures. The operation suggested by Prof. Pannett should not be done generally, because of the risks in less expert hands. And partial gastrectomy did not protect a patient from gastro-jejunal ulcer. The aim of the surgeon should be to practise the least interference which would cure the patient.

Mr. H. W. CARSON said it must be agreed that the diagnosis of duodenal ulcer was not easy, as there was often so little to go on, and even the services of the highly skilled radiologist did not give such a high percentage of positive results as Americans claimed. Also, chemical means had largely failed. Thus one had to rely more and more on the history given by the patient, often a fallacious matter. This made it the more necessary to receive with caution Prof. Pannett's statement that the majority of duodenal ulcers were cured by medical means, a statement which he did not accept, though he agreed that duodenal *symptoms* could be medically cured. The opinion seemed to be increasing that these ulcers had a septic origin, and when the abdomen was open there should be a search for any septic focus within the accessible area. He asked whether it was the general view that the intermissions observed in cases of duodenal ulcer meant that the ulcer was then soundly healed and that the renewal of symptoms indicated that it had broken down again; also, was it right to do, in the quiescent period, a prophylactic operation to prevent the inevitable symptoms at a later date? Gastro-jejunostomy was not attended by a high mortality, and the great risk was not in the abdomen but from chest complications afterwards, and for that the surgeon must take his share of the blame. This operation, however, did not keep permanently lowered the degree of stomach acidity, and in those cases of a high activity there was reason to expect unsatisfactory sequelæ. If the latter were going to appear he thought they would do so within six months of the operation, and if not then the patient was safe. If there was trouble years after the operation he believed it could not be debited to the operation. He did not think an operation of the severity of duodenectomy was justifiable at present, certainly not for general performance.

Mr. C. H. FAGGE said it was excellent that the surgeon should be able to declare that he had not seen this or that, and one of the best ways to find out what he had seen and had not seen was to deal with the primary lesion in the way Prof. Pannett advised. He (the speaker) had never seen a jejunal ulcer, but he had met with only three or four gastro-jejunal ulcers, in all of which an unabsorbable suture must have had something to do with the ulcer. All the duodenal ulcers he had seen were in the pylorus. Balfour showed by statistics that pyloric ulcers occurred in only 1 per cent. of cases, as against Prof. Pannett's 12 per cent. The majority of supposedly pyloric ulcers were really duodenal. He was not satisfied with gastro-jejunostomy in the treatment of duodenal ulcer, because an appreciable number of his cases bled after that operation. He was pleased to see William Mayo, 12 years ago, excising duodenal ulcers, and he (Mr. Fagge) had since then excised every duodenal ulcer in his cases in which he thought that was possible; the majority of them were on the

anterior surface of the duodenum. In the last few years he had done excision by a horizontal incision of the duodenal ulcer, if on the anterior surface, and then suturing up the hole in a vertical direction; though it was yet early to speak of results, he believed they were as good as his former figures. Some duodenal ulcers were so small that they could easily be overlooked.

Mr. T. P. DUNHILL said he believed duodenal ulcer could be accurately diagnosed before operation, and he did not open an abdomen unless an ulcer was revealed by the skiagram. He did not think all these ulcers were of similar kind; they differed in complications and evolution, and some had fairly large hæmorrhages with long intervals between, while others were more or less continually bleeding. Most of the patients were made enormously better by the operation of gastro-jejunostomy, though he did not think the proportion was as high as Mr. Walton's 90 per cent. Medical men who had been so treated constituted an efficient "follow-up" department, and in them there was evidence afterwards of greater sensitiveness to dietetic indiscretions and to excessive use of tobacco. He had never thought it wise to attempt resection of the duodenum for large callous ulcer in which there was much penetration of the wall; the patient's life must always be the prime consideration. He kept as his sheet-anchor for these cases gastro-jejunostomy.

Mr. C. A. JOLL also thought the skilled radiologist could give a high proportion of positive diagnostic results in these cases; out of 50 cases he recently looked through, 49 had been correctly recognised in this way, the remaining one being doubtful. Most of the cases, by the time they came to the surgeon, had already had medical treatment, and he did not think there was any evidence that duodenal ulcer had ever been cured by medical means. He believed a straightforward, well-conducted gastro-enterostomy would cure 90 per cent. of the cases; when there was serious bleeding a direct attack must be made on the ulcer by duodenectomy.

Mr. C. MAX PAGE said that in the last five years he had operated on many "second-hand" stomachs, and as a result he had formed a poor opinion of the efficacy of gastro-enterostomy; he believed that the operation, as generally carried out in England, could give a high percentage of bad results. Duodenectomy he did not regard as such a very dangerous operation, and he advocated an intelligent trial of methods other than gastro-enterostomy, remembering that high mortality was always the price of a surgical departure before good results justified its general adoption.

Mr. V. ZACHARY COPE did not feel satisfied with the dogmatic statements as to the failure to cure these ulcers by medical means. Even when the abdomen was opened one could not always tell whether a duodenal ulcer was present; inspection of only the anterior wall was not conclusive. He was sure acute ulcers sometimes healed spontaneously.

Prof. PANNETT, in reply, said he did not believe in a focal infection as a cause of these ulcers. He had cultivated streptococci obtained from the wall of a sterilised ulcer and injected them into a rabbit without any result; he had done the same with *B. coli*, streptococci, staphylococci, and diphtheroids from gastric ulcer, and again with no result on the animal when injected intravenously. He therefore hoped people would not have their antra opened or tonsils enucleated before having duodenal ulcer directly treated. He agreed it was exceptional for symptoms to occur more than six months after operation. His attitude was that which had been mentioned by Mr. Max Page; he felt that if a promising new method in surgery was to be abstained from because it appeared to be dangerous, surgery would stagnate. When he did duodenectomy—which had produced, with him, 7 per cent. mortality—he did not see the small intestine, and that was the reason patients went through the operation with very little shock or other bad after-effects. Resection was the right treatment for bleeding ulcers. Hæmorrhage from gastric and duodenal ulcers was always of the secondary type.

## PATHOLOGICAL SOCIETY.

A MEETING of the Pathological Society of Great Britain and Ireland was held at the Lister Institute on Jan. 8th and 9th, Profs. C. J. MARTIN and J. C. G. LEDINGHAM presiding.

C. Da Fano (London) described the histological changes in the brains of rabbits observed during the transmission of epidemic encephalitis and contrasted them with those produced by the herpetic virus; "minute bodies," sometimes double, were abundant. With J. R. Perdrau he also dealt with some unusually severe changes in the cerebral cortex of rabbits in herpetic meningo-encephalitis, and compared them with some of the lesions of chronic encephalitis lethargica.—J. G. Greenfield (London) demonstrated the fourth English case of Schilder's encephalitis periaxialis diffusa with its characteristic perivascular degeneration of myelin sheaths and later of axis cylinders with subsequent neuroglial overgrowth.—G. S. Williamson and I. H. Pearse (London) pointed out that in fishes the thyroid is often slung in a lymph sac, and described the variations in the abundance and granulations of the mast-cell-like components of the reticulo-endothelium of the gland associated with variations in diet and functional activity.—J. S. Dunn (Manchester) found that oxalates and uranium salts caused necrosis of the suprarenal cortex which was apparently made good by active regeneration of the surrounding cells; similar changes might be produced by particles such as starch grains. He also proposed that the histological facts suggested that the outer parts of the cortex are continually proliferating and the cells being pushed into the medulla where they disintegrate.—F. W. Lamb (Birmingham) described a case of malignant change occurring in the muscular elements of an adenomyoma of the recto-genital space; the lungs were diffusely infiltrated and the alveolar walls greatly thickened by tumour tissue which appeared to be the cause of an intense polycythæmia which developed. He also demonstrated two other curious tumours.—W. G. Barnard (London), from a study of 17 cases of malignant disease about the root of the lung, concluded that the oat-celled tumours generally regarded as lymphosarcomata are really carcinomata of alveolar epithelium.—D. F. Cappell (Glasgow) described a case of malignant chordoma of the cervical spine in a man of 59.—L. Gheorghiu (Brussels and London) had made a long series of experiments on the possibility of adapting mouse tumours to grow in rats. By inoculating new-born rats he had been able to carry on a mouse tumour for 20 passages covering a year, and the tumour progressively grew better and was absorbed later. It, however, remained a mouse tumour, for it was always absorbed in the end and would not grow at all in adult rats.—R. Muir (Glasgow) restated his position with regard to the nature of Paget's disease which he looks upon as a change of rather low malignancy of the deeper layers of the epidermis, beginning usually in the ducts and spreading thence to the nipple and more rarely to the secreting acini.—H. W. Crowe (Harrogate) had obtained micrococci from the tissues of cases of rheumatoid arthritis but not from normal tissues.—T. S. P. Strangeways and R. G. Canti (Cambridge) showed and discussed the finer changes in the nuclei and mitochondria of living cells observed in vitro under dark-ground illumination.—R. P. Smith and D. W. Patterson (Newcastle) described a case of thromboangeitis of the lower leg in a syphilitic.—S. McDonald, T. Oliver, and W. E. Cooke (Newcastle) showed some strange bodies found in the fibrosed lung of an asbestos worker who died with chronic pneumonia and tuberculous cavitation; they resembled minute insects or larvæ and were presumed to be the remains of asbestos fibres fretted by long exposure to the body fluids.—E. G. D. Murray, M. B. R. Swann, and R. A. Webb (Cambridge) gave an account of a rabbit epidemic associated with poor spring feeding caused by a diphtheroid bacillus, scattered focal necrosis in

the tissues, and a remarkable excess of large hyaline leucocytes which were specifically phagocytic towards the organism.—A. F. B. Shaw (Newcastle) pointed out that accurate leucocyte counts could be obtained only if there was a free flow of blood through the part (rabbit's or human ear); any vaso-constriction led to results which were very irregular and always much too high.—E. H. Lepper and C. J. Martin (London) showed a quick and simple method of determining the hydrogen-ion concentration of a drop of capillary blood.—J. O. W. Barratt (London) discussed the fundamentals of a hydrolytic dissociation curve.—N. D. Ball (London) dealt with the serological differentiation of species and varieties of higher animals. The brown rat cannot be distinguished from the black rat by precipitation tests; the mouse is clearly distinct from either; the white and black-and-white domestic varieties of the brown rat cannot be separated from the wild form; four fanciers' varieties of pigeons could not be distinguished from one another.—H. R. Dean and R. A. Webb (Cambridge), in a study of the precipitin reaction, found that the rate at which the precipitate appears depends on the balance between antigen and antibody; the mixture which precipitates quickest is not the one which precipitates most.—H. J. B. Fry (London) gave an account of his further work on the serum diagnosis of malignant disease; a saline- and acetone-insoluble, alcohol-soluble cholesterinised extract from carcinoma of breast gave flocculation with the sera of 75 per cent. of cases of carcinoma and sarcoma, and negative results with 75 per cent. of cases without malignant tumours.—E. M. Dunlop (Glasgow) described the fixation of the complement of normal guinea-pig serum by the typhoid bacillus in the absence of antibody, a property which could be removed by treating the serum with bacilli or coal-dust.—A. N. Goyle, J. A. Arkwright, and I. Balteanu (London) discussed the serological and immune relationships of the rough and smooth, motile and non-motile variants of typhoid and Gaertner, paratyphoid A and cholera bacilli respectively, and pointed out how the data could be interpreted in terms of antigenic structure.—P. Bruce White (Bristol) dealt in the same way with the whole Salmonella group, and indicated how those species which were specific parasites show signs of the usual parasitic degeneration either in a simplification and stabilisation of their antigenic constitution or by loss of flagella.—G. S. Wilson (Manchester) could find no clear connexion between age and virulence for mice in the Aertrycke bacillus.—W. J. Tulloch (Dundee) had promising results in guinea-pigs with a protective vaccine made by killing tubercle bacilli in olive oil.—C. H. Browning and R. Gulbransen (Glasgow) said that mice were not so resistant to tuberculosis as was often supposed, and described a massive broncho-pneumonia developing in about half the animals infected by feeding and in some 10 per cent. of those inoculated.—H. D. Wright (London) found that a second injection of pneumococci disappeared from the blood much more quickly than a first injection; this acceleration began to appear in a few hours after the first dose, reached its maximum in about three days, and then persisted for months; it was independent of antibodies.—T. Dalling (London) described the titration of *B. welchii* toxin and antitoxin and the successful protection of young lambs against a fatal diarrhœa by vaccinating their mothers. With C. C. Okell he also gave an account of the successful protection of dogs against "yellows" by vaccination with a killed emulsion of *Leptospira* made from the liver of infected guinea-pigs.—A. Piney (London) dealt with the nutritive requirements in nitrogen of colon and typhoid bacilli.—N. Raw (London) showed cultures of human and bovine tubercle which had become quite non-pathogenic after cultivation for 19 years.—C. C. Okell and G. I. Steed (London) described the anæmia and jaundice following the intravenous injection of horse serum into mice, due to the natural agglutinin which is present.—Exhibits were also made by F. W. Lamb (Birmingham), Hodgkin's disease of cervical glands; W. G. Barnard (London), stenosis of aorta; A. E. Boycott (London), green alga parasitic in the snail *Limnæa;* H. M. Perry (London), skin tumours of xeroderma pigmentosum; R. D. Passey and H. E. Harding (London), transplantable cutaneous mouse melanoma; M. J. Stewart and A. L. Taylor (Leeds), carcinoid tumours of appendix and Meckel's diverticulum; T. Lumsden (London), immunity to tumours; S. P. Bedson and H. Maitland (London), foot-and-mouth disease lesions in guinea-pigs; H. M. Woodcock (London), *Glugea* of angler fish; H. Chick, H. Roscoe, and V. Korenchevsky (London), prevention of rickets in rats by pasture-fed butter; J. Kirkpatrick, colour microphotographs.

## NEWCASTLE-UPON-TYNE AND NORTHERN COUNTIES MEDICAL SOCIETY.

AT a meeting of this Society, held at Newcastle on Jan. 7th, at which Dr. NEIL MACLAY presided, Dr. L. M. WEEKS read a paper on

*Pre-Maternity Work in General Practice.*

Discussing the problem of educating patients to seek advice as early as possible, and if possible before the third month of pregnancy, Dr. Weeks said that prejudices against examination were easily overcome, and that invariably women returned of their own accord in a second pregnancy if adequate care and interest had been shown in the pre-maternity consultations for the first pregnancy. At the first consultation in the early months a pelvic examination was not necessary unless there was a history of frequent miscarriages in a woman with a negative Wassermann, or in cases of slight hæmorrhage suggesting ectopic gestation. Rather should the first consultation be devoted to a routine inquiry into previous illnesses, previous menstrual history, history of previous pregnancies, and present symptoms, followed by a clinical examination of the heart, lungs, and urine. This was the time to give the woman advice in general rules of health during the rest of pregnancy, with warning to report such symptoms as would suggest pyelitis, miscarriage, placenta prævia, or eclampsia. Teeth with the tendency to decay should receive special attention.

After this there should be monthly examinations of the urine up to the eighth month, when a further examination should be carried out to determine the position of the fœtus by abdominal palpation. A breech or transverse presentation should then be corrected to a vertex by external rotation and the correction should be maintained by pads and binder. An occipito-posterior should also be corrected. In these cases a further examination should be carried out two weeks later and special attention should be paid to the recognition of that type of case in which the head was high above the pelvic brim at this stage, freely movable and not descending. Some interference with the lower uterine segment should be suspected in these, such as contracted pelvis, false promontory, fibroids, placenta prævia. In these circumstances a pelvic examination should be done and the true conjugate measured. The important deformity termed funnel-shaped pelvis should also be looked for. The great value of these pre-maternity examinations was that the type of case likely to require Cæsarean section or other special treatment could be recognised before labour began.

Mr. H. HARVEY EVERS gave a short address on *Albuminuria during Pregnancy*, and a discussion followed in which Dr. W. HERBERTSON spoke with enthusiasm of the help he had received by the routine antenatal examination of 150 of his cases in a general practice among industrial patients. Any scepticism or suspicion on the part of the patient was quickly swept away, and he had no hesitation in saying that the adoption of a definite pre-maternity scheme in general practice was one of the greatest advances in preventive medicine.

The rest of the meeting was devoted to a demonstration of clinical cases.

## NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

AT a meeting of this Society held at Liverpool on Dec. 18th last, Dr. JOHN E. GEMMELL, the President, delivered an address on the

*Progress of Obstetrics and Gynæcology during the Last Forty Years.*

He said that before 1885, when he graduated at Edinburgh, the only pelvic operations he had seen were perineorrhaphy, trachelorrhaphy, the cauterisation of hæmorrhoids, and one ovariotomy, which was performed by Thomas Keith with much ceremony in an isolated room at the Royal Infirmary. Gynæcology was then a small subject, chiefly limited to out-patient and consulting-room work, not free from the taint of quackery, and sometimes a target for the shafts of the satirist. Dr. Gemmell gave an interesting description of the changes wrought since then, describing, for instance, how the work of many surgeons led up to the modern extensive abdominal hysterectomy for carcinoma of the cervix associated with Wertheim's name. The science and art of gynæcology, he said, now stood upon a firm basis, and it should not be forgotten that the pioneer work of the ovariotomists had paved the way for successful surgery in the upper abdomen.

*The Ganglia of the Cervix Uteri.*

Dr. ARTHUR GEMMELL (Liverpool) said that the study of the nerve-supply to the uterus was receiving renewed attention, but the function of this nerve-supply had been more fully recorded than its anatomy, and nothing had been written on the pathological changes associated with gynæcological diseases. Most observers were now satisfied that the uterus was supplied mainly by the sympathetic proper (the white rami from the lower dorsal and first and second lumbar nerves), via the inferior mesenteric ganglion and hypogastric plexus to the ganglia of the cervix uteri and thence to the uterus itself. All authors agreed that there were cervical ganglia, and some postulated others in addition. They gave only scanty information as to the site of the cervical ganglia, but placed them at about the level of the internal os. Dr. Gemmell said that his work had been done on whole specimens removed by Wertheim's hysterectomy. No definite attempt has been made to investigate the presence or absence of intramural ganglia, but in none of the sections examined were any such seen. Dissection of the ganglia, even with the aid of dissecting binoculars, was found to be impossible, and so a block of tissue centred on the uterine artery was cut out of the parametrium. This included a piece of uterine wall, and the whole of it was examined by serial sections. Latterly this block had been divided into four and the postero-inferior portion of it cut serially. The ganglia were always found by this method if they were present, and it appeared that they lay internal to the ureter, posterior to the uterine artery, and at a little distance from the uterine wall. Sections were studied from six patients who died from various diseases not involving the genital organs, and in all these cases ganglia were found. The ages of these patients varied from 7 months to 65 years.

Dr. FLETCHER SHAW (Manchester) asked whether Dr. Gemmell had examined the parametrium behind the uterus. He had been very much struck by the excessive amount of shock shown by patients when he had enucleated tumours or growths from this region and had often thought that this part must be especially well supplied from the sympathetic system.

Dr. LEITH MURRAY (Liverpool) remarked that an extension of malignancy from the cervix had been observed in these ganglia and along the related nerves. Dr. Gemmell's interesting research might be important from that point of view.

Dr. GEMMELL, in reply, said that he thought that there were some variations in the positions of these ganglia, as in some specimens he had been unable to find them anywhere in the parametrium available. There was the possibility that interference with the ganglia might account for the shock following Wertheim's operation. The utero-sacral ligaments and posterior portion of the parametrium had not been examined as it was thought that there was more chance of finding sympathetic elements along the vessels.

*Locked Twins.*

Prof. MILES PHILLIPS (Sheffield) reported a case of impactions of twins, one of the rarest forms of obstructed labour. The patient was a primigravida and twins had been recognised by her doctor at an antenatal examination a week before she came into labour. The fœtal heart-sounds were easily heard at both sides of the abdomen. Labour began at 7.30 A.M., the pains being weak and irregular; but by 10.30 A.M. on the following day the cervix was fully dilated. The contractions were then strong, no progress was made, and Prof. Phillips saw the patient at 12.30 P.M. The uterus was not in tonic contraction, but was contracting so frequently that it was impossible to palpate the fœtal parts. No fœtal heart-sounds could be heard. The patient was anæsthetised and placed in the lithotomy position. A head was visible, low in the pelvis, unduly soft, with a large caput and the skin peeling. By passing a hand alongside the head a rounded mass—apparently a second head—could be felt at the pelvic brim impinging on the neck of the presenting child. It was impossible to push the second head out of the pelvis, and a tentative pull with forceps on the lower head failed to move it. The first head was obviously becoming macerated, and so, after perforation to afford the necessary room, the neck was cut through with curved scissors, the head withdrawn, and the trunk pushed aside. The second head, soft and pulpy, then entered the pelvic cavity and was easily extracted with forceps. This child was also dead. The children were males, weighing 5½ and 5 lb. respectively. No liquor amnii was seen and nobody could state when the bag of membranes ruptured. The placenta weighed only 1 lb.; otherwise it appeared healthy, both macro- and microscopically. It might well be that a relative placental insufficiency had caused the death of the fœtuses, either just before, or during, the not very protracted labour, as it was thought that at least one fœtal heart had been heard on the day before delivery. The single chorion showed a central opening about 4 in. in diameter. The amniotic membrane was in two portions, each attached to the root of the umbilical cord, and, over a limited area, to one another. At some time during the pregnancy this had been perforated. At numerous other cases of twin labour which Prof. Phillips had seen, two distinct sacs had existed, the second presenting and being ruptured after the delivery of the first child. Such an arrangement appeared to render collision of the two fœtuses extremely unlikely. On the other hand, the loss of all the liquor amnii from two communicating sacs would conduce to this very rare complication.

Miss FRANCES IVENS (Liverpool) mentioned that she had had a case of locked twins some years ago. The patient was a primigravida. After considerable delay in the second stage, the first twin was felt presenting by the vertex, and the second lying transversely with its neck very much elongated and stretched across the neck of the first. The transverse twin was dislodged and pushed upwards by the hand in the uterus. The first was then delivered by forceps, and the second presented as a vertex and was also delivered by forceps.

Dr. DANIEL DOUGAL (Manchester) referred to a case admitted to St. Mary's Hospital, Manchester, as a "failed forceps" case. Under anæsthesia a hand passed into the vagina found that the advance of the first child was obstructed by the head of the second one. Delivery was easily effected by pushing the second out of the way. The first child was dead;

this was probably due to injuries during previous attempts to deliver with forceps. Both children were small, and this might account for the second head being able to pass into the pelvic brim and so cause obstruction.

Dr. GORDON FITZGERALD (Manchester) had seen a case in which the first fœtus presented by the breech and the second was a vertex presentation. Number one was born as far as the umbilicus when the patient was admitted to hospital. Investigation showed that the chin of number one was locked on the chin of number two. Liberation of the head of number two was impossible, and, accordingly, as number one was dead, it was decapitated. The delivery of number two was then easily completed. There was, however, some difficulty in extracting the head of the first fœtus.

Prof. H. BRIGGS (Liverpool) remarked that in the absence of the actual fœtuses he gratefully accepted Prof. Miles Phillips's clinical description as exact and complete. In the laboratory of practical obstetrics Prof. Briggs had utterly failed in experimentally locking twins, and he was unprepared to accept reports of fœtal incidents or complications within the pelvic cavity or at the brim of the pelvis in the second stage of labour, unless the whole of the hand of the obstetrician had been previously placed within the pelvic cavity.

*Exhibition of Cases.*

At the end of this discussion Dr. D. DOUGAL reported two cases of vaginal myoma.

Mr. W. W. KING (Sheffield) described a case of chorion-epithelioma in which a metastatic growth was present at the vulva during the course of an intra-uterine pregnancy, and Dr. FITZGERALD exhibited a specimen showing adenomyoma of the recto-genital space and sarcoma of the ovary.

## EDINBURGH OBSTETRICAL SOCIETY.

AT a meeting of this Society held on Dec. 9th last, Dr. R. W. JOHNSTONE, the President, occupied the chair, and Prof. RANKEN LYLE (Newcastle) read a paper on the ethical and scientific aspects of the

*Prevention, Conservation, and Destruction of Intra-uterine Life.*

Prof. Lyle began by saying that the whole trend of medical thought about the conservation of intra-uterine life had been slowly changing during the last 25 years and that the child's life was now considered nearly as important as the mother's. The intrinsic duty of the medical profession was to preserve and prolong life—that is, the life of the ovum—from the period of gestation to the death of the individual. At one time patients used always to be sterilised after Cæsarean section, but now Prof. Lyle considered sterilisation to be an insult to surgery; it prevented a woman carrying out her mission in life. He himself had only once sterilised a patient after Cæsarean section—25 years ago—and had performed Cæsarean section as often as seven times on one patient. Induction of abortion for medical reasons ought to be prohibited. Nearly every case of hyperemesis gravidarum could be cured by hygienic treatment, suggestion, and psychotherapy, and toxic cases which required abortion to be induced were very rare. In tuberculous patients pregnancy should be allowed to go on without interruption, as also in those with heart disease—at any rate until the later months when pressure was being caused by the growing uterus, when the question of induction of labour or Cæsarean section must be considered. Chorea gravidarum very rarely nowadays warranted induction of abortion. Cæsarean section had taken the place of craniotomy on the living child, which was never necessary, and by this the maternal as well as the fœtal mortality would be greatly improved. Cæsarean section was also taking the place of bipolar version as the treatment for placenta prævia, and the operation had considerably lowered the fœtal death-rate without increasing the maternal mortality. Even in cases of prolapse of the cord, especially in a primipara, Cæsarean section was advocated to save the child's life.

Antenatal care had been instrumental in revolutionising abnormal obstetrics and preventing the majority of cases of difficult labour. By this means eclampsia had been checked to a large extent, with a great saving of both mothers' and children's lives. Abnormal presentations could now be rectified before the confinement, and breech, face, and transverse presentations could be converted to normal vertex positions. This allowed many children to be born alive who would have died had the case not been under antenatal supervision. By antenatal examination contracted pelves could be diagnosed early and the necessary treatment decided upon before labour was begun. This was very different from seeing the case advanced in labour at a time when any treatment was likely to be dangerous to both mother and child.

*Discussion.*

Dr. HAIG FERGUSON said that Prof. Lyle aimed at high ideals, but sometimes these were unattainable. He did not agree that Cæsarean section cases should never be sterilised; he thought that if a woman had been through the ordeal of three Cæsarean sections she had a right to be sterilised if she so desired. Where the induction of abortion was contemplated the interests of the mother should be considered before those of the child if they clashed, and in his opinion the operation should be permitted in some cases of tuberculosis, insanity, diabetes, *recent* heart disease, and hyperemesis gravidarum. Craniotomy was a repugnant operation, but in domestic practice it was sometimes necessary.

Dr. W. FORDYCE agreed with Dr. Ferguson that the maternal life was the first consideration. He thought that the cases of hyperemesis gravidarum in Newcastle could not be quite so severe as they were in Edinburgh, where induction of abortion was in some cases the only treatment possible to save the mother's life. He was sure, also, that some cases of chorea gravidarum warranted obstetric interference. Dr. Fordyce agreed with Prof. Lyle that Cæsarean section was desirable in cases of central placenta prævia in primiparæ.

Prof. B. P. WATSON said that when a certain treatment had been found for hyperemesis and other conditions, no fœtal life would have to be sacrificed; but at present there were cases that defied all treatment, and in these abortion had to be induced to save the mother's life. With regard to sterilisation after Cæsarean section, the patient's view must be taken into consideration, and this was especially desirable when the operation was being performed for a decompensated heart lesion. There were some cases which warranted craniotomy; for example, a primipara badly lacerated with a raised temperature and the fœtal head jammed in the pelvis.

Dr. JAMES YOUNG was surprised at Prof. Lyle's assurance that 80–90 per cent. of children could be saved by Cæsarean section in cases of placenta prævia, and thought it a strong argument in favour of such an operation. He agreed with Prof. Watson on the value of craniotomy in the definitely septic case.

Dr. FARQUHAR MURRAY (Newcastle) considered that craniotomy was never justifiable on the living child, but on a dead child it might be performed when the head was low down and easily accessible.

Dr. KEPPIE PATERSON thought that craniotomy on the living child was still a necessary evil.

The PRESIDENT said that antenatal care alone could help obstetricians to reach the high ideals of Prof. Lyle. At present, he thought, there were still some cases which required induction of abortion and craniotomy. Sterilisation by deliberate operation was hardly ever justified, but after several Cæsarean sections it was often indicated in the best interest of patients.

Prof. LYLE, in reply, said that in 1900 one Cæsarean section had been regarded as an indication for sterilisa-

tion. At the present meeting three was the number suggested. Ten years later the number would still be increasing, and soon seven would be reached. Cases of hyperemesis should be treated early, before jaundice came on; up to this year he had never induced abortion in such cases, and he had only seen one patient die. Cæsarean section, he was convinced, would give better results than craniotomy even in septic cases.

*Post-mortem Cæsarean Section.*

Dr. G. W. YULE read a communication on a case of post-mortem Cæsarean section in a twin pregnancy, with survival of one child. A primigravida, aged 25, an albuminuric, eight and a half months pregnant, who had been about 12 hours in labour, was anæsthetised in preparation for the application of low forceps to terminate the labour. Some degree of hydramnios was suspected, but no signs of either maternal or fœtal distress were noted. Upon a catheter being passed she suddenly collapsed and was apparently dead; all attempts at resuscitation, including tracheotomy, failed. Fully five minutes after death had occurred Cæsarean section was performed and a child was extracted. This child failed to respond to treatment, but when the surgeon was preparing to close the abdomen, fully ten minutes after the patient's death, a second child was discovered. It was at once removed, responded to prolonged treatment, and left hospital quite well ten days later.

# New Inventions.

## NEW CLAMP FOR USE AFTER TONSILLECTOMY.

THE instrument here illustrated has been designed primarily for use in enucleation of tonsils by the blunt guillotine. The square-ended blade is fitted with a

small piece of rubber sponge (1½ in. by ¾ in. by ¾ in. approximately; a piece of the common "Sorbo" ball can easily be cut to the required shape, slit to receive the blade and sewn on), and a small gauze bag made with a purse-string thread at the neck is slipped over the sponge at the time of operation and the thread pulled tight. The other blade is covered with a piece of rubber tubing. The instrument is applied immediately after the enucleation of the tonsil—the sponge-covered blade to the tonsil bed and the other blade behind the angle of the jaw. A clear field for the removal of the second tonsil is then left. When both instruments are applied bleeding is prevented. Two instruments—right and left—are required for each operation. In emergency in case of reactionary hæmorrhage this instrument may also be useful.

I am indebted to Messrs. Arnold and Sons (incorporating John Bell and Croyden, Ltd.), from whom the instrument can be obtained, for help in carrying out the experimental work in the making of it.

C. D. AGASSIZ, M.D. Aberd., M.R.C.P. Lond.

Brentwood.

REVISION OF THE PHARMACOPŒIA.—The Pharmaceutical Society of Great Britain has accepted the invitation of the Pharmacopœia Committee of the General Medical Council to send two delegates to a conference on general questions connected with the revision of the Pharmacopœia to be held in London on Feb. 23rd at 11 A.M. The other bodies that have been invited to send delegates are the Ministry of Health, the Royal Society, the Royal Society of Medicine, the Medical Research Council, the British Medical Association, the Physiological Society, the Chemical Society, and the Linnean Society.

# Reviews and Notices of Books.

THE CHEMICAL ANALYSIS OF FOODS.

A Practical Treatise on the Examination of Foodstuffs and the Detection of Adulterants. By HENRY EDWARD COX, M.Sc., Ph.D. Lond., F.I.C., Public Analyst for the Metropolitan Borough of Hampstead. London: J. and A. Churchill. 1926. With 38 illustrations. Pp. 323. 18*s*.

THE significance of pure food for the welfare of the community needs no emphasis to our readers. The busy practitioner may have little time to spare for the study of the technical details of food analysis, but will be glad to have accessible a readable account of the main outlines of the methods employed in the examination of foodstuffs and of the nature of the adulterants commonly met with. This volume, though addressed primarily to chemists, is written from the point of view of the requirements of public health and of the Sale of Food and Drugs Act rather than that of the worker in a particular branch of the food industry, and is not too technical to be appreciated by those without special experience

The first chapter deals with analysis of sugars, treacle, honey, jam, and marmalade, and opens with a brief survey of the characters of the commoner sugars and the methods employed in their identification. The emphasis upon the melting points of the pure sugars would seem unduly insistent in view of the relative unimportance of this constant compared with the crystalline form and melting points of the respective osazones, which receive but scant mention, while the characteristic phenyl hydrazone of mannose is entirely ignored. Among the methods given for the estimation of sugars it is refreshing to find the iodometric method of Willstätter and Schudel; on the other hand, no mention is made of Bertrand's convenient and reliable method for estimating sugars. That the author is quick to avail himself of new methods is shown by the fact of his having adopted the process published only a few months ago by King (*Analyst*, 1925, l., 371) for the estimation of agar-agar in jam; this method is based upon the recognition within recent years by Haas (*Biochem. Jour.*, 1921, xv., 469) of the occurrence of ethereal sulphates in the mucilaginous extracts of a number of sea-weeds such as Irish moss. In this connexion we observe that the formula printed on page 41 is incomplete and should read: $\begin{matrix}-O.SO_2O\\ \\ -O.SO_2O\end{matrix}\!\!>\!Ca$. The second chapter, which is devoted to starches, cereals, flour, bread, custard, and blanc-mange powders, contains drawings of starch grains derived from 24 different sources; attention is drawn to the recent work of Woodman (*Jour Agric. Sci.*, 1922, xlvi., 231), offering a chemical interpretation of the meaning of "strength" in flour. The approved methods of carrying out the Marsh, Berzelius, and Gutzeit methods for estimating arsenic are also described. The third chapter contains some interesting data concerning the composition of eggs and egg oil which are not usually to be found in books on food analysis. In the fourth chapter some account of the nature and methods of estimating pectin are given in connexion with the analysis of fruits; this is a subject which has come to the fore within recent years, and its inclusion in this volume is welcome. The estimation of the total acidity of fruit is facilitated by the use of a simple type of hydrogen electrode here described for the electrometric estimation of hydrogen-ion concentration. The fifth and sixth chapters are devoted to the analysis of tea, coffee, cocoa, and spices. In the seventh chapter the method described for estimating sulphur dioxide in wine is of importance in view of the recent Public Health Regulations which permit the use of this preservative in alcoholic wines. The examination of flesh foods, sausages, and potted meats is dealt with in the eighth chapter; attention is drawn to the occurrence

of arsenic in fresh fish, and figures are given for the amounts of this element shown by the author's analyses to be present in a number of well-known and commonly consumed fish. The ninth and tenth chapters are concerned with the analysis of milk and milk products and of butter and cheese, and the last chapter is devoted to fats and oils. In an appendix the Public Health (Preservatives, &c., in Food) Regulations, 1925, which are to come into force on Jan. 1st, 1927, are well summarised; the main provisions of the two schedules are given in small compass.

The whole book is thoroughly practical, and describes in an intelligible manner methods of food analysis which can be trusted to give reliable results.

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SURGICAL METHODS.

*Methods in Surgery.* By GLOVER H. COPHER, M.D., Instructor in Surgery, Washington University School of Medicine. London: Henry Kimpton. 1925. Pp. 232. 14*s*.

THIS book consists of a description of the routine methods employed in the surgical divisions of Barnes Hospital, St. Louis Children's Hospital, and Washington University Dispensary, including outlines for case-history taking, and instruction upon pre-operative and post-operative care of patients and diets. It is for the guidance of the house officers and students working in the hospitals enumerated above, and while much of the material is of a very special nature and of interest only to these individuals, some of the suggestions and instructions may appeal to a wider field and prove of use, especially to those who have to devise schemes of work for the surgical sections of other hospitals. The book is thoroughly up to date and includes, for example, full information for the carrying out of cholecystography by Graham's method.

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ABDOMINAL AND PELVIC SURGERY.

For Practitioners. By RUTHERFORD MORISON, M.A., D.C.L., LL.D., M.B., F.R.C.S., Consulting Surgeon, Royal Infirmary, Newcastle-on-Tyne; Emeritus Professor of Surgery, Durham University. London: Oxford University Press. 1925. Pp. 212. 8*s*. 6*d*.

ONE of the most difficult problems the practitioner has to face is the differentiation of serious from minor complaints of sudden onset. The lives of most sufferers from acute abdominal disease lie in the hands of the family doctor. Unless he recognises its early signs the efforts of the most skilled surgeon are of no avail. To help him in detecting such serious conditions promptly Mr. Morison has written this book. The task could scarcely have been done more effectively. The outlook is designedly simple and the author insists only on essential things.

The book is a welcome addition to the series of small handbooks emanating from the Oxford University Press, which will be read through with interest and kept for reference.

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RECENT ADVANCES IN PHYSIOLOGY.

By C. LOVATT EVANS, D.Sc. Lond., M.R.C.S., L.R.C.P., F.R.S. London: J. and A. Churchill. 1925. Pp. 364. 10*s*. 6*d*.

SCIENTIFIC investigation of biological problems usually proceeds to-day along one of two general routes. In the first place a tissue—blood, muscle, or nerve—may be removed from its normal physiological surroundings and studied in its reactions to varying conditions of physical and chemical environment. An analysis of these reactions is attempted in terms of physics and chemistry. Clearly this field becomes the playground of those scientists whose familiarity with the character of inorganic reactions interests and justifies them in applying this knowledge to comparatively simple biological, or comparatively complicated physico-chemical, systems. The basal mechanism is the investigator's bait. In the second place the reactions of a tissue or organ, retained as far as possible within its normal physiological environment, may be studied in its relation to the activity of other organs. Here we are dealing with a far more complicated state of affairs, and in the absence of a knowledge of the reactive mechanisms of all the tissues involved, we have to confine ourselves largely to the description without essaying the interpretation of the phenomena studied. An attempt is made to study the interdependence of various organs and so to correlate their activities the one with the other. This is the field of the experimental physiologist.

Prof. Lovatt Evans in this book has condensed into a comparatively small space a description of the progress made by physiologists during the last few years along the lines indicated above. The book is divided into 14 chapters, and it is interesting to note that half of them are devoted to blood and the circulation, showing in no uncertain manner the great importance which must inevitably be attached to the study both of such a fundamental problem as the "internal medium of the body" and of the mechanism and regulation of its supply to the tissues. Following an excellent account of the capillary circulation a chapter is devoted to the mechanism of tissue oxidation, from which the reader is naturally led to an account of the mechanism of muscular contraction in both its chemical and physical aspects. The application to the physiology of muscular exercise in man of the results of researches on the chemistry and physics of contraction forms the title of another chapter, in which a remarkably clear account is given of recent work from A. V. Hill's laboratory. A description of recent work on the active principles of the thyroid, pituitary, and pancreas fills a further chapter, and the book is concluded by two fascinating accounts of the recent work of Magnus on the mechanism of postural reflexes and the functions of the labyrinth and of that of Pavlov and his school on conditioned reflexes. The book is intended for "the more seriously-minded students reading for an intermediate examination for a medical degree" and also "for the guidance of students preparing for honours examinations." It will doubtless gain the wide circulation it deserves, not only amongst those who are studying for the higher examinations but also amongst those who are actively engaged in biological research. There are a few misprints which can be made good in a future edition.

We congratulate the author on the attractive and instructive manner in which he has written the book. Its production must have entailed a large expenditure of time in sifting the diluted literature of contemporary physiology and of thought in its condensation into such a small compass.

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THERAPEUTICS.

*The Art of Medical Treatment.* With Reference both to the Patient and to his Friends. By FRANCIS W. PALFREY, M.D., Visiting Physician, Boston City Hospital; Instructor in Medicine, Harvard University. London and Philadelphia: W. B. Saunders Company. 1925. Pp. 463. 21*s*.

ONE striking feature of this book is noted in the subtitle, "With Reference both to the Patient and to his Friends." The patient's friends do not, of course, require treatment, but they do require explanations, and the proper handling of anxious and, it may be, interfering relatives is an integral part of the treatment of most cases of illness. This subject is here touched on in a way which is, so far as we know, unique. The practitioner, in his earlier days, finds that the medicine given to his patient is but a part of his treatment, that nursing arrangements are equally important, and that the management of the friends is often the most harassing part of the case. Dr. Palfrey even goes so far as to note the management, in the above sense, of the local health authorities. With these various ideas in view, each disease is dealt with under definite headings, some of which are worth naming, if only for their originality. *First*

*Thoughts* introduces the subject, gives broad lines of treatment, and notes matters demanding emphasis; *Placing* gives items of posture and environment; *Supportive* denotes the means of supporting the patient against the disease; *Information* tells us what can be said, subject to considerations already discussed, when the facts are to be told; *Preventive* includes precautions and reports. Apart from these special features the book itself is just a straightforward exposition of treatment in general practice. If it does not go deeply into out-of-the-way methods, it at least lays down the ordinary means of treatment clearly, and should prove a good friend.

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*Favourite Prescriptions.* By ESPINE WARD, M.D., West African Medical Staff. London: J. and A. Churchill. 1926. Pp. 96. 5*s*.

EVERY medical man in practice collects prescriptions consciously or unconsciously. The wise generally have some small interleaved book in which they write them down, and it is not a bad plan to make a hospital pharmacopœia the basis of such a collection. That which Dr. Ward has published is a sound one, and is offered in interleaved form.

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*The Book of Prescriptions.* With Notes on the Pharmacology and Therapeutics of the more important Drugs. Eleventh edition. By E. W. LUCAS, C.B.E., late Member of the British Pharmacopœia Reference Committee; and H. B. STEVENS, O.B.E., late Lecturer on Pharmacy and Food and Drugs in the South-Western Polytechnic Institute. London: J. and A. Churchill. 1926. Pp. 382. 10*s*. 6*d*.

A BOOK in its seventieth year—the first edition, by Henry Beasley, was issued in 1856—and its eleventh edition is certainly worthy of note. Perhaps pharmacology and prescriptions conduce more to the long life of a book than, let us say, surgery. The frequent repetition of official pharmacopœias maintains a standard of freshness, whereas in surgery, even though a book is kept up to date for a certain time in its facts, its framework tends to get out of date and out of repair. We can congratulate the writers, who are two eminent pharmaceutical chemists, on the age and the freshness of this work. It treats of medicine from the pharmacological and pharmaceutical side rather than the purely medical one. Recent introductions receive full notice and prescriptions are given illustrating the use of many of the drugs. This is a handy little book of reference.

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COLLOIDAL GOLD.

*Kolloidforschung in Einzeldarstellungen.* Vol. II. Edited by R. ZSIGMONDY. *Das kolloide Gold in Biologie and Medizin.* By ERNST JOËL. Leipzig: Akademische Verlagsgesellschaft. 1925. Pp. 115. M.6.

THIS little book contains a complete account of the uses of colloidal solutions of gold in biological and medical work. It commences with a very brief account of Zsigmondy's early observations upon the precipitability of colloidal gold solutions by electrolytes and with the protective action of various other colloids. The gold members of various proteins and fluids are then dealt with, after which Lange's reaction with the cerebro-spinal fluid is discussed. The clinical application of this reaction in the diagnosis of syphilitic lesions of the nervous system is reviewed and particular stress is laid on the recent work of Eskuchen. The use of colloidal gold solutions in the study of proteins is next dealt with, whilst the volume concludes with a very short chapter on the gold numbers of blood serum, urine, and gastric juice. A fine series of references is included at the end, though the author has overlooked some rather important English work; for instance, a paper by J. Cruickshank is not referred to at all, whilst the work of J. Mellanby and T. Anwyl-Davies receives too brief mention.

## JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY, November and December, 1925.—In the November number the chief place is given to the discussion on miners' nystagmus at the Royal Society of Medicine last February, which was chiefly remarkable for the variety of views represented. It seems to be generally admitted that oscillation of the eyeballs in dim light can be explained by the physiological properties of the fovea centralis, and the fact that as large a proportion as one-quarter of all miners working underground in the dark do develop latent nystagmus—i.e., can be shown by suitable tests to have oscillating eyeballs—strongly suggests that this view is correct. As to whether improvement in lighting is a sufficient remedy there appears, however, still to be a remarkable divergence of opinion. The orthodox view that lighting will prevent nystagmus is here represented by T. Lister Llewellyn and J. S. Haldane. Others, including M. Culpin and the late C. F. Harford, look upon miners' nystagmus as a neurosis analogous to shell shock or "railway spine." F. Robson maintains his thesis that the gaseous emanations from certain sorts of coal are mainly responsible for the condition, while Prof. E. L. Collis and G. H. Pooley blame the compensation laws. In their view these encourage a large number of men with defective health or defective will to become pensioners on the industry because they can actually obtain more money by this means than by any other open to them.——In the December number H. Neame is partially responsible for two papers. The first, of pathological interest, describes a case of endothelioma of the optic nerve; the second, of clinical importance, is on glaucoma secondary to choroidal sarcoma. Of 402 cases excised on account of glaucoma, approximately 10 per cent. were found on pathological examination to contain a choroidal sarcoma; 4 per cent. were blind glaucomatous eyes in which there appears from the clinical notes to have been no suspicion of the existence of a new growth. This establishes the urgent importance of enucleation in the case of blind glaucomatous eyes, in which ophthalmoscopic examination is not possible.

MEDICAL WOMEN'S INTERNATIONAL JOURNAL. Vol. I., No. 2. November, 1925.—The second number of the organ of the Medical Women's International Association, which is to be published twice a year, contains a foreword by Lady Barrett, President of the Association, setting out some of the ways in which medical women of all countries united in an association may hope to serve the world.—Reports follow from seven of the twenty national corresponding secretaries, notably from Dr. Helga Meisen (Denmark), Dr. Hermine Heusler-Edenhuizen (Germany), Miss Louisa Martindale (Great Britain), Dr. Curjel Wilson (India), Dr. Szczawinska (Poland), Dr. Marie Feyler (Switzerland), and Dr. Kate Mead (U.S.A.). These give some account of the work being carried on by medical women, collectively or individually, in the respective countries.—Reports of an international congress on child welfare, held in Geneva in August, 1925, are contributed by Dr. Cornaz-Wyler and by Dr. Elizabeth Sloan Chesser.—Dr. Alice Hamilton describes the fourth international medical congress of industrial accidents and diseases held in Amsterdam in September, while Dr. Agnes Savill deals with the International Congress of Radiology which took place in London last June.—Original articles include an abstract of a paper read by Dr. Clelia Lollini at a congress of medical women held in Milan in 1924, on women in connexion with the struggle against tuberculosis.—Dr. Alice M. Pennell contributes an article entitled A Medical Woman in India.—Dr. Esther Loring Richards writes on the Psychiatric Aspects of Child Welfare, and Lady Berry, M.D., on International Work and the M.W.I.A.—The first of a series of articles dealing with Post-graduate Research Work being carried out by medical women in various countries and a few reviews conclude the number.

THE LANCET.

*LONDON: SATURDAY, JANUARY 16, 1926.*

## THE COUNTY PATHOLOGICAL SERVICE.

THE offer by a county council to provide a comprehensive pathological service for the county is no new idea; and to those who have not grasped exactly either what the proper employment of a pathological laboratory is or the position of those who have to render the necessary expert service, the idea appears sensible and progressive, and has received advocacy. But for some time it has been obvious that, unless such a service, in so far as it is comprehensive in what it is prepared to do, recognises that a proportion of its benefits ought not to be offered gratuitously in all circumstances and to all comers, the working out of the idea may be mischievous, while the highly important section of the medical profession devoted to pathological work may be placed at an extreme disadvantage. In the report of the Medical Research Council for the year 1923–24 the position of the sciences of pathology and bacteriology, on which so much of the current work of medicine depends, was briefly reviewed and was not considered altogether satisfactory, mainly because the departments of pathology and bacteriology at many universities were built up on a basis of commercial work, and in conditions likely to disturb research and to monopolise the time of a professor and his staff, to the detriment of better things. Let us remember that valuable criticism in considering the circumstances that may arise out of hasty and ill-devised schemes for the provision by counties of a pathological service. It is not denied that many universities were aided very substantially in the equipment of teaching from the commercial value of the work done by the professors, and the procedure can be held justified, as an interim course, both because the universities were carrying out duties of public utility and were earning money which was spent upon the provision of facilities for research, but no one wants to see such sources of revenue confirmed as an ideal of attainment.

Now we see the hope expressed that, by development of the competency of local authorities to provide a public pathological service, the need for the trading activities of the universities will disappear. This may be so, and is a powerful reason for watchfulness lest the pursuit of bacteriology and pathology should suffer under ill-directed action by county councils, whereby the conditions under which the best qualified students of these subjects outside the universities might lose proper scope and opportunity. The whole matter has come to the fore recently under separate aspects, but all are parts of the same picture. The pathological facilities offered by the Staffordshire County Council have been considerably criticised. Here the situation has been discussed by the Council of the British Medical Association, when the position of the Association was defined by Dr. H. B. BRACKENBURY, the chairman of the Representative Body, and it was concluded by the meeting to refer the questions at issue to a special committee, with a reference to consider the policy of the Association in regard to the work of the private practitioner in pathology, and to pathological laboratories advertised by commercial firms. In both connexions it must be insisted that the private practitioner has public duties as pathologist to his hospital, and private relations with medical practitioners in his environment. We have before us a list of the tests which can be done in the laboratory of the Staffordshire County Council, which is a development of the V.D. centre for Wolverhampton, and though situated in the grounds of the county voluntary hospital is distinct from the pathological department of this hospital. From this schedule it seems that the practitioners of the county can obtain results of a comprehensive assortment of tests gratuitously, in all circumstances, and for all classes of patients. If a county can supply such inclusive and minute pathological and bacteriological assistance, and for all classes of patients, without any money passing, while commercialism may be truly said to be removed from the county authorities, and while the authorities may be relieving the universities to some extent from the activities at which the Medical Research Council has looked askance, it would seem that these desirable issues will be obtained at the expense of any medical man in the county desirous of practising as a bacteriologist and pathologist. This position, were it to become general, would not only be a serious threat to the material prospects of a highly equipped body of medical men whose numbers are increasing as the intimate relations of their special work with medicine and surgery becomes more and more obvious, but it may destroy that very quality of intimacy upon which the value of expert pathology mainly depends. If the medical activities of county councils should develop wrongly, not only will the standing of private pathologists be gravely jeopardised, but all the value which is so rightly laid upon close coöperation between the practitioner and the pathologist will disappear. Surely it is only by having pathologists available for consultation that this coöperation with private practitioners can be maintained; and surely, also, any tendency to regard a county laboratory as a slot machine for its neighbourhood, ready to engulf a bottle of urine, sputum, or what not, and to return a diagnosis and a bottle of vaccines, is a line along which scientific medicine can never progress. The pathological laboratories attached to commercial firms already are in competition with much of the work of individual practitioners, and they are able to call attention to their productions in a direct way in which private pathologists cannot follow them. This is a point upon which some of the pathologists attached to charitable institutions feel sore, and quite intelligibly, but such rivalry is without the unfair elements that exist where a county council organisation enters the lists. For the laboratory of the county council is rate-supported, and obtains its subsidy in earnest of its public health work. All the good that the county council laboratory can do in public health directions is rightly done for the public, and the rates pay; but the rate-supported service is designed for public health work, and when a county council proposes to give gratuitous assistance in the form of medical diagnosis in other directions its action cannot be justified, in relation either to the progress of science or to the proper interests of scientific workers.

The action of the Staffordshire County Council is particularly unfortunate at this juncture of time, for the report of the Royal Commission on National Health Insurance is expected to make recommendations which will hopelessly complicate the proposed procedure in Staffordshire. Common foresight would have suggested waiting to see whether the Royal

Commission will or will not recommend that under the medical benefits given to the insured there shall be provided a pathological service of experts. If this occurs, all that pathological work which lies outside the confines of public health would naturally be undertaken by individual pathologists for the most part in the laboratories provided in the voluntary hospitals. These pathologists would be the experts whom the practitioners of the district will consult for their panel patients in accordance with a statutory scale, and for their private patients in response to proper fees. The extension of medical benefits which is expected will demand a proportionate increase in the number of medical men working at pathology whose services, while partly at the disposal of the panels, should also be available for other than the insured population, and these will not be expected, or expect, to accept the advantages gratuitously. In other words, the expert pathologist, like the medical practitioner in other branches, will give of his best in response both to those who pay through the State and to those who pay individually. The natural centres for the work of these men will be the laboratories attached to the voluntary hospitals which are, on the one hand, acting as centres for the insured patients of their districts, and which, on the other hand, provide a medical staff for coöperation with the practitioners of the neighbourhood. Proper arrangements between the great commercial firms and the medical profession can be looked for safely, but the competition of county laboratories becomes a serious matter for the private pathologist when a county council, at its laboratory, proposes to do what does not come within the proper purview of a county authority.

## HOUSING AND HYGIENE.

HAVE we turned the corner as regards the housing problem? The Minister of Health, in whom the members of the public health services have great confidence, appears optimistic; last month he stated in the House of Commons that more houses were built during 1925 than the annual average during the building boom at the beginning of the century, and that more schemes for slum clearances were submitted and confirmed in the six years 1919 to 1925 than in the 24 years before the war. All that is good hearing, but Dr. F. E. FREMANTLE was right when he emphasised that what was wanted now was goodwill and national endeavour. Of late years the job of building has largely passed out of the hands of the private builder into those of the local sanitary authority and of the Government. Whether this transfer is temporary and accidental, or marks a permanent tendency in the conduct of affairs, even the clerk to the London County Council has not made up his mind.[1] In any case the housing question needs to be lifted out of the ruts of trades-union politics and party dissensions, and medical men should take every opportunity of using their special knowledge for the general enlightenment. For medical men there has been sufficient evidence in the past as to the effects on health of bad housing to make comment appear superfluous, but because the doctors and the statisticians know the connexion between the prevalence of diseases in various localities and the housing accommodation in those localities —its character, the number of rooms per house, and the rest—it does not follow that the public is equally well informed. No pains should be spared to advance cogent arguments as to the relation between bad housing and bad health. The families which occupy the worst houses are generally the worst off in all other respects, and this may disguise the most fundamental of their drawbacks, which is their home.

What are the essentials of a healthy home? During the debate on Dec. 18th last in the House of Commons Sir LESLIE SCOTT referred to the 2246 back-to-back houses of Liverpool as being unfit for anyone to live in for a week. We are hardly in a position, however, to damn all houses of the back-to-back type without particular consideration. In his report for 1924 the medical officer of health for Leeds states that, although more than two-thirds of the houses in that great city are built back to back, about half of them are of a type which does not differ appreciably in healthiness from through houses. Only two-thirds of the deaths from all causes in Leeds during 1924 occurred in these back-to-back houses—in other words, they had their proper proportion of deaths. But no health officer has any doubt that on the whole disease is more prevalent and more fatal in bad than in good houses. Exact evidence on the question is, however, singularly lacking, although we may well hope that it will be made good in the five-year survey which the Minister of Health has asked for to accompany the 1925 reports. Some indications may, however, be quoted. Dr. STANLEY BANKS, in his recent report for the Burgh of Motherwell and Wishaw, states that there are 13,965 inhabited houses in his burgh and that 72·3 per cent. of the population live in houses of one or two rooms. The notifications of tuberculosis, he finds, are higher in the very small houses; the 19 per cent. of the population who live in one-roomed houses contributed 35 per cent. of the notifications of tuberculosis for the period 1921 to 1924. Dr. BANKS also deals with the incidence of other infectious diseases on the persons living in houses of each class during the years 1923 and 1924, and says that the attack rate of scarlet fever and diphtheria "hardly varies at all with size of house," but for pneumonia "the attack rate is considerably higher in the one-roomed and to a lesser extent in the two-roomed house." Speaking generally, it is notorious that we have had exceptionally low death-rates during all this period of bad housing. It is possible that a better educated people has to some extent been able to rise triumphant over its housing troubles. There have been signs, however, during the last year or two of a set-back to the progressive improvement of the tuberculosis death-rate. To turn to morbidity, Sir JOHN ROBERTSON believes the amount of rickets in such "flatted" towns as Glasgow, Munich, and Chicago to be ten times as great as in the towns where cottages predominate.[2] Dr. AUSTIN PRIESTMAN'S recent inquiry into adenoids and otorrhœa among Folkestone school-children leads him to regard overcrowding and insanitary conditions as almost the sole factors in their production.[3]

Until the 1925 reports come in from the public health service most people will be content to rest the case for better housing on the tribulations of houseless families in every part of the country and on those conditions which make the decencies of life utterly impossible. There is more than enough evidence before the public already to show that this problem is urgent and must be faced. The peculiar knowledge of doctors, however, and the fact that the public health is more the concern of the doctors than anyone else, make it necessary that they should leave no stone unturned in promoting national endeavour

[1] Sir James Bird: Housing and What it Does for London. Hodder and Stoughton. 6*d*.

[2] The Health of the House: What the Modern Dwelling Needs to be. Faber and Gwyer (the Scientific Press). 1925.

[3] The Medical Officer, Jan. 2nd, 1926, p. 8.

and in rousing the national conscience. In a letter published in our columns, a correspondent offers the kind of evidence—evidence of failure—which must be brought home to the nation, and pleads for the coöperative effort which ought to be a main contribution of the profession to the political and social life of to-day.

## MALARIA AND INDUSTRY.

A HAPPY discrimination is shown by the public demand which has necessitated the re-issue, in the *Indian Journal of Medical Research* for October, 1925, of two Government publications [1] under the title "Two Malarial Surveys Connected with Industrial Projects in Certain very Highly Malarious Localities in India." Both these industrial concerns are, in fact, situated in areas where malaria is hyperendemic.

The first comprises about 10,000 acres of a wide, almost level, plain of high grass jungle interspersed with swamp, near the foothills bounding the valley of the Brahmaputra to the north. Habitations have been placed where they would interfere least with agricultural operations—namely, on trimmings of land lying along swamp and stream which breed those recognised malaria carriers *Anopheles listoni* and *A. minimus*. In the layout of the estate it was clearly not recognised that malaria might determine the commercial value of the undertaking and that the first procedure should have been a malaria survey to determine, within the area selected for cultivation, the most suitable housing site—which in this instance would have been the central plot of the estate. As a result 91 per cent. of the children had, at the time of the inquiry, palpable spleens. Owing to heavy invaliding the staff of Europeans, mechanics, and servants is constantly changing, recruitment is a difficulty, and the cost of training the new staff considerable. Regarding a remedy, and writing with personal knowledge of the subsoil drainage system which has so successfully combated malaria in the Federated Malay States, Colonel CHRISTOPHERS held this procedure to be here financially impracticable. It will, however, be recollected that Sir MALCOLM WATSON himself visited, in 1924, a large group of tea estates in Upper Assam, where *A. maculatus* and *A. minimus* are abundant, instituted a system of subsoil drainage designed to strike at their breeding-places, and expressed little doubt that malaria would soon be under control.

The other industrial venture concerns mines in the Singhbhum District of Bihar and Orissa. The mining camps lie in alluvial-bottomed valleys within the hills. Inspection was made during three weeks of the cold season. The average spleen-rate in children was 69. The basis of the inquiry, perhaps the first instance on which this has been attempted from the hygienic aspect, is a quantitative determination of the degree of infection by malaria parasites in the cutaneous blood; and the conclusions to which it leads are striking. By spreading a determined quantity of blood in a thick film upon a determined area of slide, examining this with a square-apertured ocular giving a field of determined size, and counting the parasites in 200 square fields, the number of malaria parasites in a cubic millimetre of blood was estimated. It varied, where they were detected, from 4 to 134,232; 85 per cent. of parasites came from those who had lived on the estate for two years and under. In those who had been born on the estate the similar percentage was 92. Infection in the second year of residence approximated to 100 per cent., and the average parasite value was over 12,000 per c.mm. Now the number of parasites always associated with febrile attacks of 103° F. or over seemed here to be somewhat under 5000 per c.mm. and Colonel CHRISTOPHERS calculates that, by his figures, which apply to the cold, non-malarious season, hyperendemicity is to be associated with an infection so intense that it practically amounts to a continuous attack, with over 10,000 parasites per c.mm., extending over a period of two years. This stage is designated as "acute infestation." Over the age of 2, while the proportion of children infected is as high as ever, the average number of parasites falls to 1200 per c.mm. between two and five years, and to 1000 between six and ten. This stage is designated "immune infestation." Similar figures apply to immigrant non-immune children, at least during the first two years of residence. Correlating these counts with enlarged spleens, it was found that a spleen projecting 4 to 6 cm. from the costal margin (correction being made to a sitting height of 60 cm.) was that associated with acute infestation. It is concluded that the net result of passing childhood under hyperendemic conditions is the acquirement of a form of immunity. The parasitic forms found were almost uniformly rings of 2 to 3 $\mu$ in diameter, identified tentatively as *Plasmodium tenue* Stephens, 1914. The readiness with which Colonel CHRISTOPHERS will be followed on this point will depend on the extent to which it is believed that the differences on which this form is separated from *P. falciparum* are reliable, when there is used, as is customary with malariologists, a mode of preparation which is rejected for other protozoa as giving no reliable information regarding structure. Gametocyte formation was associated with heavy infection of the cutaneous blood and with the period of acute infestation. The proportion of gametocytes to rings was 1 to 390. Of adults, 51 per cent. were found infected and the average number of parasites was 109 per c.mm. It is concluded that this peculiar relationship of low value of infection and high percentage of infected must represent immunity in the adult. In them, as in children, crescents were associated with the heavier infections.

These considerations have this practical value, that the present labour is "salted," and not in such urgent need of protection as are "non-immune" persons. Observations of the 15 species of anopheles discovered point to *A. listoni* and *A. culifaciens* as primarily implicated in infection, with *A. wilmori* as an unknown element of danger. In the matter of preventing breeding there is a short length in one ravine held suitable for treatment along the lines of subsoil drainage so extensively and happily employed in the Federated Malay States. For the rest it is concluded that the most fundamental work open to the Company is the choice in the first instance of situations for lines, quarters, and bungalows that are either naturally free from liability to anophelism or can be made so with the least difficulty. If outside labour be imported from relatively non-malarious parts serious incapacity is to be expected, and the choice of suitable situations for their lines would become almost the only practicable antimalarial measure which would not be excessively costly. The fundamental error of both these large industrial concerns is, then, that they have been instituted in hyperendemic areas without adequate effort being made to determine how best malarial infection of the staff could be avoided. Their present heavy financial handicap is the direct result of their failure to obtain sound sanitary advice before launching into heavy expenditure.

[1] I. Report on Malaria at the Assam Sugar Estates and Factories, Ltd., Nalbari, Assam, 1921. II. Inquiry on Malaria, Blackwater Fever, and Ankylostomiasis in Singhbhum, 1923. By Lieut.-Colonel S. R. Christophers, C.I.E., O.B.E., I.M.S., Director, Central Research Institute, Kasauli.

THE CONTRIBUTORY PENSIONS ACT.—The Ministry of Health announces that the number of claims received in Great Britain under the Widows', Orphans', and Old Age Contributory Pensions Act was 163,000. The number of pensions so far awarded is 103,000; about 25,000 have been rejected or withdrawn, and there are still over 34,000 under investigation. In any case where pensions are awarded the payment will be dated back to Jan. 5th, and it is estimated that the number already approved covers more then 306,000 widows and children. The main grounds for the rejection of claims are: (1) the claimant has no child under 14; (2) the widow has re-married; and (3) the normal occupation of the husband at the time of his death would not have been insurable under the Act if it had then been in force.

# Annotations.

"Ne quid nimis."

## LONDON PORT SANITATION.

Dr. W. M. Willoughby reports to his Sanitary Committee that no case of plague, cholera, typhus, or small-pox had to be dealt with during 1924 in the Port of London; no plague-infected rat was found; the 21,783 aliens arriving were clean, healthy, and louse-free; and the food and sanitary inspections were carried out satisfactorily. In April of that year a number of foreign medical officers were shown the Port, and especially its methods for dealing with infectious disease. The most important duty of a port authority is to prevent the importation of infectious disease and unwholesome food; infection is kept out more easily now that port medical officers everywhere pool their knowledge. Bulletins telegraphed from ports abroad enable the authorities to get a clear idea of the prevalent epidemics, and incidentally render obsolete the system by which ships are still expected to bring with them a mass of papers dealing with the public health at their ports of call. The chief problem at present is plague, and the necessary destruction of rats. A ship is mentioned—obviously that referred to in the health report [1] of Cardiff Port—which was suspected and was carefully examined in London and Cardiff without any rats being found. Two cases of plague occurred on board before she reached Port Said, and when she was fumigated at Suez ten rats were killed. Forty rats were reported to have been killed in a fumigation four months previously. The infection probably occurred in South America, whence she had carried a cargo of grain. After discharging this she was loaded with coal, and the rats must have gathered themselves round the pantries; a steward's boy, whose cabin was next a pantry, got right and left femoral buboes. Dr. Willoughby, to whom so much of our knowledge of the epidemiology of plague on board ships is due, remarks that there may quite well be an outbreak of plague on board a ship even if it has only few rats, provided that they become infected and that there is no particular attraction for them in the cargo in the holds to keep them at a distance from the crew. Port health reports record not only cases of infectious disease which have been seen, but also those which occur during the voyages of the ships entering harbour. This accounts for the frequency with which small-pox and tubercle are mentioned. Of small-pox, 12 cases occurred among crews and five among passengers, but in no case did the disease spread, thanks to the immediate vaccination of contacts. Of the 66 cases of pulmonary tubercle landed in London, 16 were taken care of by the Seamen's Hospital Society, along with 30 cases of other forms of tuberculosis. Malaria caused much illness on board a ship at Bombay. Her third officer fell ill with malaria on the eighteenth day after arrival there, by which time the ship had reached Port Said on her way back, and died on the twenty-seventh day. There were no other deaths, but 8 Europeans and 16 natives of the crew were infected, and had to be sent to the care of the Seamen's Hospital Society as soon as they reached London. Bombay has lately gained an unfortunate reputation for spreading malaria, both in the Navy [2] and in the Mercantile Marine. A story is told [3] of a ship disabled at Karachi in 1924 on account of half the crew being down with malaria contracted at Bombay. But in fact the progress that has been made at Bombay in stamping out malaria is remarkable, considering the situation and social life of the city. At the present time there is a certain amount of malaria on nearly all ships trading with India, and it is constantly present amongst native crews. It cannot be expected, however, that Bombay can abolish the disease and thus protect all sailors entering the port, although the progressive reclamation going on in the harbour will in time reduce malaria. What is required is a far more generous distribution of quinine to crews visiting Eastern waters. Dengue is mentioned as often attacking ships during voyages, especially in voyages from Calcutta. 187 seamen came to notice suffering from venereal disease. In ships 14,922 rats were killed, 13,742 in dock warehouses; 64 ships were fumigated with sulphur (29 rats killed, on an average), and seven ships with hydrocyanic acid (80 rats killed, on an average). About the docks two brown rats are killed to every black (or plague-carrying) rat. It seems to be suggested that it is safer to fumigate the whole of a ship at one time; in one case the holds only were fumigated with sulphur dioxide, and no dead rats were found, but after a later fumigation 55 rats were found in the crew's quarters, where they may have found harbourage during the earlier partial fumigation.

There were 16,455 inspections of ships, and 210 were found defective; 2509 nuisances or sanitary defects in ships were reported and dealt with, the most numerous being dirt, smoke, bad lighting, leaks, defective ventilation, and improperly kept sanitary conveniences. 3000 tons of foodstuffs were condemned as unfit for human food, and 130 tons were destroyed. Actinomycosis was found in 1·5 per cent. of ox-tongues but in 5 per cent. of "ox-tongue roots," and 463 quarters of formalinised frozen beef were destroyed owing to the formalin having made the beef indigestible and so unfit for food. Cashew nuts with maggots in them were condemned, in spite of the protests of the importers, and permission to re-export was refused. Permission was also refused in the case of spinach which had been greened with copper sulphate, 5 gr. to the pound. Unboiled periwinkles were found to be spreading typhoid in the neighbourhood of Southend. The question of latrines about the docks is having attention, and new by-laws for houseboats in the river up to Teddington Lock, to secure them good drinking water, avoid nuisance, and prevent infectious disease, have come into force.

This is a valuable report, which should give the public confidence that it is being well protected against the importation of unsound food and infectious disease by the Port Sanitary Authority of London.

[1] THE LANCET, 1925, i., 1051.
[2] Navy Health Blue-book, 1922, p. 61.
[3] Arch. f. Schiffs- u. Tropen-Hygiene, October, 1925, p. 487.

## CATCHING DISEASES EARLY.

"To educate the public in the care of its health" is the aim of the Middlesex Hospital Press Committee, and amongst other activities it has issued nine Health Leaflets for distribution. These have the following titles: Cancer of the womb; What should be known about cancer; The "change of life"; Infantile diarrhœa; Care of the teeth; The prevention of deafness; House flies and disease; Eye-strain; and Precautions to be observed by tuberculous patients. They have been written by members of the staff of the hospital, and medical officers of health and others are urged to use them as propaganda. So far over 36,000 have been sold to health authorities, and the committee allows these to print their own names at the head of the sheets if due acknowledgments to the hospital are made. The price shown on the sheets is 2*d*. each. As an example of the leaflets may be quoted that which deals with the prevention of deafness. It starts as follows:—

"Severe deafness, unless due to wax, is rarely curable, but in many cases something can be done either to relieve it or prevent its increase. Slight deafness, especially if it has not lasted long, is much more often curable, hence in all cases expert medical advice should be sought directly impaired hearing is noticed. There are three principal causes of deafness: (1) wax or similar material blocking up the ear; (2) diseases of the mouth, nose, or throat; and (3) poisons which circulate in the blood and affect the nerve of hearing."

These statements are perfectly clear. When, however, the author later says "This [change in the

drum] is especially likely to occur when the inflammation is chronic and due to nasal obstruction, mouth-breathing, repeated sore-throats, or chronic nasal catarrh," we have some doubt whether he will carry all his readers intelligently along with him. The instruction of the leaflets is lucid and, on the whole, simple; but here and there expressions should be made even easier. Each leaflet might be submitted to a person of average intelligence for translation into the vernacular as far as this can be done without destroying its effect upon educated people. After a useful series of comments the writer on deafness continues:—

"The reader who has glanced through the above may regard it as a somewhat depressing story, but though little can be done to cure deafness, excepting in the earlier stages, there are various mechanical contrivances which magnify sounds and assist hearing, just as glasses give help in errors of sight. . . . The only way to cure or prevent deafness is to treat the causes that produce it, and *good can only be done in the early stages of the trouble.* Hence it is imperative not to delay, but at once to seek expert medical advice directly the slightest impairment of hearing is noticed."

The italics are ours, but they are reduced from the capital letters in the original. They may well form the war-cry of those who are trying to educate the public in health matters. Such publications as those of the Middlesex Hospital have as their object the awakening of personal alarm. In a neurotic generation this may seem superfluous; but counsel such as these pamphlets give may provide that extra stimulus which makes a nervous person face hearing the worst and at the same time it may save unimaginative people from disaster. And apart altogether from the attempt to arouse the right kind of self-consciousness in health matters—always a difficult task—there is much information in the leaflets that will be helpful to the people for whom it is intended.

## ROYAL SOCIETY OF MEDICINE.

SINCE their inception in 1919, the social evenings organised by this Society have been popular and well attended. The first of those arranged for the coming session will be held on Feb. 1st, at 8.30 P.M. Sir StClair Thomson, President of the Society, will receive the guests, and at 9.30 P.M. Dr. F. J. Poynton will give a short illustrated address on The Part Played by Doctors in the Early Days of Aeronautics. Later in the session Sir Humphry Rolleston will speak to a similar gathering on Some Worthies of the Cambridge Medical School, while the address planned for the evening of March 1st by Dr. Gustave Monod will be entitled From Cagliostro to Coué, or Imagination as a Method of Treatment. Dr. Monod is not the only distinguished foreigner whose visit is expected by the Society, since the Dermatological Section have invited Dr. C. Levaditi, of the Pasteur Institute, Paris, to address them on Recent Advances in the Chemotherapy of Syphilis. This lecture should prove attractive to members of most other sections of the Society, and may well form the occasion of a large and representative gathering.

## FASCIOLOPSIS INFECTION IN CHINA.

THE *American Journal of Hygiene* is performing a useful service to international hygiene by publishing a series of monographs, the most recent of which deals with fasciolopsiasis or infection with the intestinal fluke, *Fasciolopsis buski*, from the pen of Dr. Claude H. Barlow, of Shaohsing, China. It was in 1843 that Mr. George Busk, F.R.C.S., first discovered this very large trematode worm in the duodenum of a lascar who died in the Seamen's Hospital, and the parasite was named by Lankester in 1857, but it is only recently that the life-history and clinical effects of this fluke have been worked out. As now elucidated, the life cycle closely resembles that of the common liver fluke, *Fasciola hepatica*, and thus differs from the more typical trematode cycle in that the cercarial, or infective, stage escapes from its intermediate snail host and passes its encysted stage on certain pond plants, which constitute a local article of food. With these facts available, prevention of human infection would appear to be eminently simple, but it does not follow that such a conservative population as that of central China is likely to be greatly impressed by the promulgation of the scientific facts of the case or to derive immediate personal benefit therefrom. The theoretical simplicity of the prophylactic problem bears some analogy to that of hookworm, but the practical difficulty may be no less great. Fasciolopsiasis, however, appears to be a less serious affection than ankylostomiasis or schistosomiasis, its principal clinical features being intestinal disturbances and, in chronic cases, œdema. Interest in Dr. Barlow's report is heightened by an account of his personal symptoms following experimental auto-infection and his subsequent cure by means of the most up-to-date anthelmintic remedy, carbon tetrachloride.

## THE HEALTH VISITOR AND HER EDUCATION.

HEALTH visiting is, comparatively speaking, a new profession. It was in 1908 that the London County Council first empowered sanitary authorities in London to appoint women to be known as health visitors, whose duties were to include: (1) giving advice on the proper nurture and management of young children; (2) the promotion of cleanliness as the basis of health; (3) such other analogous duties as may be assigned to them. In the absence of any official pronouncement on the subject, it is hardly to be wondered at that widely divergent views have been held as to the most desirable training for the woman who is to fill this somewhat nebulous rôle, and even now no complete agreement has been arrived at. Some feel strongly that a three years' general nursing training should be insisted upon as the foundation in every case. This is in accordance with the American practice, where the public health nurse is, as a matter of course, a graduate of a hospital training school; and in this country the College of Nursing has recently arranged a course of training in preparation for the health visitor's certificate, for which none but the fully-trained nurse is eligible. On the other hand, there is a body of people, including medical men and women of such experience as Prof. H. R. Kenwood and Dr. Flora Shepherd, who have expressed the opinion that three years spent entirely in association with illness is actually detrimental to a health visitor, whose efforts, in so far as they are medical at all, deal with prevention and not with cure. Such essentials as a knowledge of anatomy, physiology, and asepsis can, they say, be acquired more quickly than by spending three years in hospital. Members of this school of thought insist on the social character of public health work, and consider that routine nursing in an institution does little to prepare the health visitor to help the mother in grappling with the problems of a working-class home.

While different views as to the best training have thus been held amongst those well qualified to judge, it has for a long time been recognised, especially by health visitors themselves, that a uniform standard should be accepted over the country as a whole, so that a certificate considered essential by one local authority should not be regarded as a disadvantage in another district. The regulations issued by the Ministry of Health, which came into force in April, 1925, represent a serious attempt to face the situation and to reduce to order the chaos of former permissible qualifications. The health visitor, under these regulations, gains a certificate after passing an examination conducted by the Royal Sanitary Institute—the central examining body appointed by the Ministry to hold examinations in various convenient centres—and she must either (*a*) be a trained nurse who has obtained the certificate of the Central Midwives Board, and has completed an approved course of training in public health work for at least six months; or (*b*) have undergone a course of training of two years' duration, already recognised under the Board of Education (Health Visitors' Training) Regulations, 1919, together with six months'

training in hospital, and has obtained the certificate of the Central Midwives Board. In no case is a certificate now granted without the passing of this examination, which was held for the first time last October. Existing health visitors are safeguarded in that they may be reappointed without further qualification, and those with five years' service may sit for the examination without attending any special course of instruction; but from April 1st, 1928, no woman may be appointed for the first time as whole-time officer of a local authority with health visiting duties unless she has obtained the certificate. Those who have many years of service to their credit, as well as the best qualifications hitherto available, will evidently be at a disadvantage in applying for new appointments, as compared with the youngest health visitor who holds the Ministry's certificate, and it is doubtless to rectify this that the Ministry has recommended local authorities to give every opportunity to health visitors to obtain the certificate, and offers grants in aid to enable them to do so at a reasonable fee.

## "SHIP FEVERS."

FEVERS have always been the most prevalent and important of the diseases of seafaring men, but under this convenient term have been included illnesses of many different sorts. The advance of medicine in the last 30 years, particularly in the differentiation and recognition of diseases, has shown how many illnesses aboard ship are due to tropical disease, and especially to malaria. In a recent article [1] Prof. K. Sannemann illustrates this statement from his experience at the port of Hamburg. Twenty years ago Nocht estimated that malaria attacked 60 per cent. of the crews of ships trading to malarial regions. Prof. Sannemann himself found that, between 1908 and 1914, one-seventh of the medical cases coming to his notice on ships arriving at Hamburg were malarial, two-thirds of them from West Africa, one-eighth from the Caribbean Sea. Of the malarial cases 86 died and 2125 were received into hospital. Cases are not so frequent now as they were before the war, for quinine prophylaxis has become familiar both to owners and to sailors. Ships' doctors report improving results for, though prevention is not absolute, cases are fewer and slighter, and time lost through illness is reduced. That time-wasting tropical disease, dengue, is also met with on shipboard, and Prof. Sannemann finds that there are medical officers acquainted only with European diseases who do not treat amœbic dysentery with emetine and yatren. Doctors should, he thinks, not be put in charge of ships sailing to the tropics unless they have had a course in a school of tropical medicine. At present they have to report themselves to the port medical officer, who has only time to touch on the more important matters. Moreover, a doctor on board ship is sadly handicapped without a microscope.

## THE AMERICAN HEART JOURNAL.[2]

THE economic importance of rheumatic infection in childhood is being impressed on the Metropolitan Asylums Board by its medical officers, and we print substantially in full on p. 151 Dr. Gordon Pugh's report, in accepting which last Saturday the Board also accepted responsibility for the preventive treatment of cardiac complications. The care of heart disease when it has once occurred, especially as a factor of industrial importance, has received more general consideration in America than in this country, as a visit to one of the pioneer clinics in New York City, such as that of Dr. Wyckoff, at the Belle Vue Hospital, or that of Dr. St. Laurence, at St. Luke's Hospital, will show. Of these the former is an evening clinic, dealing solely with adults whose disability is not yet sufficient to prevent them carrying on their employment. The cost to the hospital is small, for not only do the medical officers give their services in a purely honorary capacity, but almost the entire clerical and administrative staff consists of voluntary workers, who, after a hard day's work in the city, devote their evening to the work of the clinic. Their labour is rewarded, for there are few departments of medicine in which results are so soon to be seen; the patients fully realise that, but for the advice and treatment which they receive week by week at the clinic, many of them would no longer be able to support themselves and their families. At the children's clinic at St. Luke's Hospital the picture is no less pleasing. Here many cases of incipient heart disease are arrested in the early stages, so that children, who would otherwise have been crippled for life, grow up to be useful members of society. The clinic also includes a group of "potential cardiac cases"—namely, children who have suffered from rheumatic fever or chorea, but have not hitherto manifested any signs of heart disease. Careful supervision may prevent some of these from developing cardiac lesions. In the diagnosis of heart disease considerable progress has been made during the past quarter of a century, as the result of the advance in our knowledge of the cardiac mechanism; but in its treatment, apart from the more rational use of drugs, there is little to show. To speak of "cure" in connexion with organic heart disease is hardly permissible, but concerning its prevention and relief there is still much to learn; and in these two branches of therapeutics the statistics compiled by the American Heart Association will have permanent value.

This Association has undertaken the task of organising the study of heart disease on a large scale, and the first number of its official organ, the *American Heart Journal*, appeared in October last, with the primary object of rendering more easily accessible papers on various aspects of heart disease, previously scattered in less specialised journals. Although primarily clinical in character, and designed to appeal to the general practitioner as well as to the heart specialist, this journal will contain original articles dealing with the more purely scientific and public health aspects of the subject, critical reviews, and abstracts of important articles in the current literature. The first number opens with an article by Dr. Aldred Scott Warthin, giving the clinical histories and pathological findings in eight cases of sudden death due to exacerbation of latent syphilitic myocarditis. The extremely abrupt onset of severe symptoms, in apparently healthy men, was a very striking feature, for in only one of these cases did the fatal illness last for more than a few days. The myocardial lesions were found to be crowded with spirochætes, and the cell infiltrations were predominantly polymorphonuclear, resembling those of the rapidly developing lesions seen in experimental animal syphilis, as opposed to the round-celled infiltration of the more chronic process. Another original communication dealing with a rare and interesting condition is that by Drs. Samuel Bradbury and Cary Eggleston on Postural Hypotension. Three cases are described in which assumption of the erect posture was associated with a remarkable and persistent fall in both systolic and diastolic pressures. All these patients were liable to syncopal attacks, exhibited a total inability to perspire, and had a slow pulse-rate. The reaction of the patients to certain drugs led the writers to suggest that the condition is probably due to paralysis of the sympathetic vaso-constrictor nerve-endings. Dr. E. Libman discusses the prognosis in a series of 800 cases of subacute bacterial endocarditis. Drs. Frederick A. Willius and Samuel F. Haines give an analysis of the cardiac findings in 162 cases of myxœdema. Drs. Samuel A. Levine and Francis C. Newton, in a paper dealing with the operative treatment of angina pectoris, give the clinical and laboratory findings in eight cases in which sympathectomy was performed, and discuss the selection of cases suitable for this operation. Drs. Paul D. White and Merrill M. Myers give a comprehensive classification of cardiac diagnosis. Drs. James G. Carr and John D. McLean have articles dealing with the public health aspect of

[1] Arch. für Schiffs- u. Tropen-Hygiene, 1925, xxix., 486.
[2] The American Heart Journal. Edited by Lewis A. Conner, M.D., and Hugh McCulloch, M.D., under the editorial direction of the American Heart Association. London: Henry Kimpton. 37*s.* 6*d.* per annum post free, single issues 7*s.* 6*d.*

heart disease. Drs. William J. Kerr and Stacy R. Mettier review the literature dealing with the blood-supply of the heart valves. They describe their own observations on the pig, and discuss the embolic theory of endocarditis in the light of these findings. Drs. George R. Herrmann and Frank N. Wilson describe a new electrode with a very low external resistance, suitable both for clinical and for experimental electrocardiography. We feel sure this new journal will serve a useful purpose in bringing recent advances in cardiology before the notice of a wider public, and especially in directing attention to the all-important subject of prevention.

## THE LABORATORY DIAGNOSIS OF SMALL-POX.

WITH the increasing occurrence in several northern and midland counties of the mild form of small-pox it is obvious that any serological or similar method of identifying this disease would be of the greatest service. During the years 1924 and 1925 there were a certain number of cases of suspected small-pox in Belgium, and Dr. L. van Boeckel carried out an important series of investigations on 12 cases where the diagnosis was doubtful. The results of this have been recently published,[1] and if the experimental work can be confirmed an important addition to the methods of diagnosing small-pox will be available. Clinically, all 12 cases ran the course of mild small-pox, or, as Dr. Boeckel prefers to call it, alastrim, following the modern accepted views on the symptoms and signs of this disease. The experimental work consisted of attempting to vaccinate the patients, examination of their blood, Paul's reaction, examination for the corpuscles of Guarnieri, and complement-fixation tests. Vaccination and blood counts were carried out in the ordinary way. Paul's reaction consists in removing some of the liquid contents of a vesicle, or using a suspension of dried and powdered crusts, which is suitably diluted and placed on the scarified surface of a rabbit's cornea, the other eye being used as a control. At the end of 40 to 48 hours small elevations appear on the surface of the inoculated eye if the reaction is positive, as it is held to be constantly if material from a case of small-pox or vaccinia be used. In alastrim the reaction is inconstant and feeble, while it is always negative in chicken-pox. On microscopical examination of the rabbit's cornea thus treated certain round or oval collections of bodies are to be found, known as the corpuscles of Guarnieri. These are said to be pathognomonic of small-pox, although somewhat divergent results indicate that they may be present if alastrim vesicle lymph has been used. The complement-deviation experiments appear to be of great interest. Both the vesicles and pustules of the small-pox eruption contain a specific antigen and the serum of a small-pox patient contains specific antibodies. These bodies are similar to those for vaccinia, but quite distinct from those of chicken-pox. The specific antibodies appear in the blood during the stage of vesiculation and disappear during desquamation. In the case of chicken-pox specific antigens and antibodies are also found. The difficulties with regard to obtaining fresh small-pox lymph to act as antigen in carrying out complement-fixation experiments have been got over by using dried vaccine lymph which has been found to answer the purpose well and can be stored and emulsified before use. In the case of chicken-pox the antigen used consists of dried and powdered crusts which are emulsified in saline before use. After various experiments the necessary amounts of complement, antigen, and serum have been worked out and the method applied with suitable controls to the 12 cases already mentioned. Dr. Boeckel emphasises that no one laboratory test should be relied upon for the diagnosis of small-pox, but that all five enumerated above should be employed in each case. He claims that if this be done it is almost always possible to differentiate between chicken-pox and small-pox in a doubtful case. Thus, in one case of a miner, aged 25, who had been successfully vaccinated and revaccinated, a specific fever occurred which corresponded to the classical descriptions of alastrim. Vaccination on the eighth day of the disease was negative, there was a leucopenia with a relative leucocytosis (as occurs in chicken-pox), the Paul reaction was negative, and no corpuscles of Guarnieri were found. The complement-fixation test was negative with small-pox antigen and positive with chicken-pox antigen. The diagnosis of chicken-pox was therefore made with some certainty. It is unfortunate that these researches have not enabled Dr. Boeckel to differentiate alastrim in any satisfactory manner as a specific disease. He points out as an added difficulty from the clinical point of view that chicken-pox appears to take the form of alastrim quite as often as does small-pox; this is, we believe, not the experience of clinical observers in this country.

[1] Bulletin de l'Office International d'Hygiène Publique, November, 1925, p. 1215.

## THE OTAGO MEDICAL SCHOOL.

JUDGING from a volume[1] which has lately reached us, the methods of instruction at the Medical School of the University of Otago, Dunedin, N.Z., are progressive and must be stimulating. It consists of 13 papers reprinted from the *New Zealand Medical Journal*, the *Journal of Pathology and Bacteriology*, and THE LANCET, and is wholly the work of hospital residents, assistants and demonstrators, and senior medical students. A systematic attempt is made to encourage independent work, and though, of course, a great deal that is produced is not more permanent than academic exercises should be, the present issue of the Proceedings shows that a certain amount is done which is obviously useful to others as well as to the authors. There are papers on some anatomical anomalies, the serum treatment of pneumonia, the treatment of fractures of the forearm, virulent staphylococcal infections, complement fixation in the diagnosis of gonorrhœa, and other interesting subjects. So much of medicine, surgery, and pathology is the same all the world over that the topics are of general interest everywhere. The only article of nominally local character deals with diabetes in New Zealand, and shows that its prevalence is rather greater than in England and rather less than in the United States, and has increased in recent years as it has elsewhere. The plan of stimulating senior students and young undergraduates to plunge into original inquiries at the earliest possible time is not without its dangers. It may and does lead to the publication of many papers which are records of time spent rather than contributions to the advancement of knowledge, and sufficient care is not always taken that the inquirers are adequately grounded in a wide elementary knowledge of their subject. But as a piece of academic training, imposed on an adequate preliminary preparation, it is unrivalled, and with due restraint in publication should be more widely adopted than is done at present.

[1] Proceedings of the University of Otago Medical School, No. 3, 1925. Edited by Prof. D. W. Carmalt-Jones, Dunedin, N.Z.

WE regret to announce the death, at the early age of 41, of Dr. George Herbert Hunt, physician to Guy's Hospital.

THE sudden death took place at Bradford on Jan. 12th of Mr. Basil Hall, honorary consulting surgeon to the Bradford Royal Infirmary and lately President of the British Medical Association.

## INDEX TO "THE LANCET," VOL. II., 1925.

THE Index and Title-page to Vol. II., 1925, which was completed with the issue of Dec. 26th, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLVI.

## THE TREATMENT OF TINNITUS AURIUM.

THE treatment of tinnitus is unfortunately often disappointing, and it must be admitted that advance in this direction is in no way commensurate with that along other paths of knowledge of aural disease. The fundamental difficulty lies in lack of knowledge of the pathology of tinnitus, with the result that treatment must be largely empirical and based on clinical observation of the use of various drugs. Since tinnitus is an accompaniment of most forms of ear disease the subject is a large one; indeed, the author of one large text-book states that "treatment of subjective noises is as broad as the subject of ear and brain diseases." This statement is no doubt true; nevertheless it is perhaps helpful to condense what is known in the treatment of a symptom which is always annoying and frequently distressing.

Though many cases must be treated empirically there remains a number that may be relieved by treating an objective cause. Investigation of a case of tinnitus must be systematic and thorough in order to eliminate this possible cause before falling back on well-tried drugs.

Cases may in the first place be divided into two groups: (*a*) Those without deafness, very small compared with (*b*) those in which tinnitus accompanies deafness. In passing it must be noted that patients' statements as to deafness are unreliable, and after examination many who at first sight are regarded as group (*a*) pass to swell group (*b*).

### *Cases of Tinnitus without Deafness.*

The question of general health must be gone into and treated; constipation, renal conditions, vascular system, including heart and blood pressure, anæmia, functional nervous disease, neurasthenia, exhaustion, physical and mental, also excess of tobacco and alcohol. Certain "referred" causes must receive attention. Investigation must include the *teeth;* unerupted molars may cause tinnitus, and an X ray examination of the jaws and subsequent extraction may cure the noises. Even carious teeth may be a cause of tinnitus. The *accessory nasal sinuses* must come under suspicion and must be investigated for the presence of suppuration. The *nasopharynx*, too, may show some abnormality, though, as a rule, in cases of nasopharyngeal disease (adenoids, growth), deafness usually accompanies tinnitus. The *tonsils* must not be overlooked, since undoubtedly some unexplained cases of tinnitus are due to toxic absorption from tonsils and removal has been followed by cessation of tinnitus. In this group are placed those cases in which the tinnitus is not a true tinnitus but an hallucination; the patient hears voices and sentences, a condition almost always indicating serious mental disease.

### *Tinnitus with Deafness.*

Though there is no real evidence as to the cause of tinnitus it appears to be true that any pressure on the foot-piece of the stapes makes for tinnitus (this can be shown by the fact that pressure on the normal membrane with a probe produces tinnitus), so that relief of any existing pressure should relieve the patient. The cases in this group may be subdivided into (1) cases with objective signs of disease, and (2) those without objective signs.

### *Cases with Objective Signs.*

In these patients examination must be made of (*a*) the external auditory meatus, (*b*) the tympanic membrane, (*c*) the Eustachian tube.

(*a*) The *external auditory meatus* must be examined for wax, foreign bodies, polypi, osteomata; treatment of these conditions if found is obvious.

(*b*) The *tympanic membrane* must be examined for signs of middle-ear affections. The membrane may show signs of acute inflammation, redness or bulging, or recent perforation; in these conditions the tinnitus is usually described as pulsating or blowing; subsidence of the acute condition usually leads to cessation of the tinnitus. There may be an exudative middle-ear catarrh, as shown by slight changes in the colour of the membrane and by a hair-like line on the membrane. This line is concave upwards and is made by the surface of the fluid in the tympanum and moves with movement of the head. With this condition the tinnitus complained of is of water moving or, in more chronic cases, of creaking, or of "two pieces of leather being rubbed on one another."

*Treatment* consists in inflation of the Eustachian tube and instillation of drops of glyc.-acid-carbol.; if unsuccessful the membrane is incised under strict asepsis or antisepsis and the fluid sucked out with Siegle's speculum or blown out by means of the Eustachian catheter; removal of the fluid immediately removes the noise.

The membrane may show old-standing perforations or scars of perforations or atrophic patches, but treatment of these conditions locally is usually useless as far as tinnitus goes, since they indicate chronic infections and adhesions.

It has been long recognised that the rarefaction of the air in the external auditory meatus often diminishes the noise, and when such is the case vibratory massage of the drum is well worth carrying out and should be practised for about five minutes on three or four occasions. Retraction of the membrane is very often associated with tinnitus in its severest form.

(*c*) The *Eustachian tube* is vitally important; any catarrhal condition of the upper respiratory tract may cause catarrh of the Eustachian tube; this condition results in retraction of the membrane, and it is impossible to dissociate conditions of the membrane and abnormalities of the tube.

*Treatment.*—Inflation of the tube by means of the catheter in recent cases may lead to immediate cessation of the noises; this proceeding may want repeating on three or four occasions. Inflation of air alone is not always successful, but good results may be obtained by inflation of warm air, vapour of chloroform, or ether; or again by inflation of a few drops of a 5 per cent. solution of methyl salicylate in parolein through the catheter. In obstruction of the tube the passage of a Eustachian bougie gives excellent results. In recent cases these local measures meet with a considerable degree of success; but when the middle-ear catarrh is chronic local measures often fail and from a treatment point of view the cases must be placed in the next class to be considered.

### *Cases without Objective Signs.*

Tinnitus with deafness includes a large number of cases in which there is no objective lesion amenable to local treatment, in which the Eustachian tube is clear, the membrane normal and no sign of pharyngeal or nasopharyngeal infection; broadly speaking, the cases are those of internal ear deafness and otosclerosis. The term internal ear deafness is given to a very large group of cases with very varying pathologies. From the point of view of treatment cases of chronic middle-ear catarrh must be included.

*Treatment.*—Whatever the cause of the deafness, and it is often quite unknown, treatment of the tinnitus runs on similar lines; drugs and general advice with encouragement. The best drug is no doubt dilute hydro-bromic acid, and it should be given in full doses of ℥i., three times a day in water; it may be combined with small doses of potass. iodid.; small doses of quinine (gr. i., t.d.s.) help other cases. The condition of the blood pressure is of some help; in cases of high blood pressure doses of trinitrin often

give good results. On the other hand, with low blood pressure ernutin should be given and digitalis may well be combined with acid. hydrobrom. dil. Thyroid extract gives encouraging results, especially in cases about the menopause. Pilocarpine nitrate, gr. 1/12, twice a day in a mixture, is sometimes of value. Luminal, gr. ½, three times a day, may be given and the doses carefully increased if need be.

The general advice deals with the patient's health and habits. He should avoid excess of alcohol and tobacco; indeed, tobacco should be stopped. Some people improve with change of environment, in others life at a high altitude causes cessation of the noises. Regular exercise and treatment of constipation should be insisted on. Many patients have a dread, often kept secret, that the noises are going to affect the brain, and reassurance helps them to support what is a depressing burden, especially when the noises are so severe as to prevent sleep. It has been suggested, and carried out with success, that patients should keep a very loud-ticking clock near their beds, so that their attention may thus be distracted from their head noises. Hypnotics should be given to these severe cases. It is these very obstinate cases, so distressing that the victims threaten suicide, which have led to the suggestion of operation on the cochlea or eighth nerve. Unfortunately the few operations that have been carried out have not justified themselves, since the tinnitus has continued in patients who survived the operation.

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# Special Articles.

## RHEUMATIC INFECTION IN CHILDHOOD:
## FACILITIES FOR PROLONGED TREATMENT.

A REPORT on rheumatism in childhood was submitted to the Metropolitan Asylums Board on Jan. 9th by Dr. W. T. Gordon Pugh, chief medical officer of the Board's children's and surgical tuberculosis services. Dr. Pugh reproduces in his report the considered opinions of various authorities and has collected information on the facilities available for treatment in the London area. The subject is of such interest and importance that we reproduce the substance of Dr. Pugh's report.

### *Extent of the Evil.*

In 1923, says Dr. Pugh, one-eighth of the deaths in England and Wales were registered as being due to heart disease, and it has been estimated that one-half of all cases of heart disease are of the rheumatic type. In a prolonged investigation at Bristol Dr. Carey Coombs found that in two-thirds of his cases the disease commenced between the ages of 5 and 15, and if these data are correct it follows that rheumatism in childhood is eventually responsible for one twenty-fourth of all deaths. In the past insufficient attention has undoubtedly been paid by health authorities to the prevention and treatment of rheumatic fever in children. Cardiac cripples have not received from them the sympathy and care that tuberculous and paralysed cripples have received, possibly because they are less conspicuously in evidence. There are signs, however, that public interest is awakening.

### *Manifestations of Rheumatism in Children.*

Rheumatic fever, as Dr. Pugh remarks, is exceedingly rare in infancy and uncommon under the age of 5. After 5 it is, of course, not only one of the most frequent diseases of childhood but one of the most serious, differing from the same disease in adults in that joint affection is a much less prominent symptom, which may, indeed, be altogether absent. Taking its commoner forms, there are two principal groups: those beginning with sore-throat, arthritis, and carditis, and those beginning with chorea, often associated with carditis, but sometimes not. In 1108 cases observed by Dr. F. J. Poynton [1] carditis occurred in 60 per cent., arthritis in 56 per cent., chorea in 55 per cent., and sore-throat in 30 per cent.

### *Incidence in London School-children.*

The school medical officer of the London County Council reports that a census of children absent for over three months is taken once a year, and that in November, 1924, it was found that there were 2686 children who had been absent for this period, of whom 672 were absent on account of rheumatism of the heart and chorea. During 1924 there were admitted to the physically defective schools 271 children with acquired heart disease. Among about 10,000 children examined at ordinary routine inspections by Dr. Nairn Dobbie (i.e., excluding the worst cases who either do not attend school or are early admitted to a physically defective school), definite evidence of acquired carditis was found in 0·1 per cent. of children under 5 years, in 0·25 per cent. at 7 years, and in 0·7 per cent. at 12 years. In 90 per cent. of all these cases of structural alteration of the heart there was a history of rheumatic fever, definite chorea, recurrent pains and repeated tonsillitis, either singly or combined. In the remaining 10 per cent. the only illnesses recorded were scarlet fever, diphtheria, influenza, measles, or whooping-cough.

### *Indications in Management.*

Much depends, continues Dr. Pugh, upon the treatment which the child receives in his first attack. From the administrative aspect there are two indications in treatment:—

(1) *The healing of the heart condition*, so far as it can be healed, by rest and regulated exercise.—The horizontal position reduces blood pressure and cardiac action, and lessens the danger of cardiac complications; rest in bed at least until the pulse-rate is normal is essential. How nearly this rest should be absolute and how long it should be continued are matters for investigation. Dr. R. Miller advocates prolonged quiet rather than strict rest; and Dr. Poynton says that convalescence from rheumatic carditis should be a history of graded exertion and not aimless rest. Others, with facilities for providing a more prolonged recumbency than voluntary hospitals can afford, favour an extension of the period of complete rest. On the general subject of management a letter from Sir Archibald Garrod may be quoted:

> "In some cases of children of medical men, for whom one can ensure the necessary care and rest, I have seen results which have enabled me to realise how much might be accomplished could the necessary conditions be ensured. I can express my confident belief that an organisation which rendered it possible to give two or three months' rest in bed to all children with rheumatic fever would reduce very materially the severity and frequency of what is commonly spoken of as 'heart disease,' amongst the adults of the community."

(2) *The building up of the resistance of the tissues* to help them to overcome the tendency to further attacks.—This is more debatable, for the cause of relapses is not definitely understood. Dr. Miller says:

> "Whence come these later attacks? Are they from the alimentary tract, the mouth, or the bowel, or do they originate from foci left encapsulated in the tissues of the body? In some cases it would seem that they are not really fresh attacks, but recrudescences of an infection which has never truly been quiescent. I confess that this whole subject, important though it is, is full of mystery to me."

Whether the prevention of relapses depends on freeing the patient from the infection or on building up his resistance, treatment for a considerable period in hygienic country surroundings seems to be indicated. Dr. Poynton, advising prolonged care in the country

[1] Brit. Med. Jour., 1923, i., 919.

for sufferers from rheumatic heart disease after the acute phase is over, says:

"Will these measures prevent relapses in the future? The answer seems to me plain; until we have a specific remedy the most we can expect is that by giving children time to consolidate the recovery of their hearts, and by assisting nature to build up the resistance of their body tissues, we certainly help them to repel future attacks. After puberty the tendency to cardiac rheumatism diminishes, and thus we have the right to believe, until it is proved to the contrary, that a number of these cases will escape further attacks. Fresh air, rest, and education will not themselves arrest rheumatism, but they are sure steps in its prevention."

*Existing Accommodation in London.*

(1) *Children's Hospitals.*—There are six London children's hospitals, and Dr. Pugh has summarised the statistics for 1924 of the five which publish annual medical reports. The total accommodation was 706 beds; these received 10,096 in-patients, of whom 377 (or 3·7 per cent.) suffered from rheumatism or its effects (rheumatism, 99; morbus cordis, 117; chorea 161). The pressure on the accommodation of voluntary hospitals calls for a somewhat rapid passage of patients and the average stay, omitting cases of adenoids, varied from 20 to 30 days. The stay of rheumatic cases is generally longer; at the Hospital for Sick Children, Great Ormond-street, it averaged 60 days in 1919–20. Some children's hospitals have their own convalescent homes and are able to transfer a small number of their rheumatic cases to them; a few cases are transferred to special country homes of limited accommodation; sometimes it is necessary to send these patients home to await vacancies. Physicians have long lamented the necessity for the premature return of rheumatic cases to their homes, and Dr. Miller, remarking that pressure on hospital beds made prolonged treatment impossible, continues:

"The ordinary convalescent home in the country or at the seaside is too lively a place for the chronic heart case. I think most physicians have quite given up sending such cases to convalescent homes even where they will be accepted.

(2) *General Hospitals.*—Many cases are treated at general hospitals, but as children are not separated from adults in the statistics, it is not possible to ascertain the number. The difficulty of providing treatment of sufficient length is even greater than in children's hospitals. A letter from the almoner of Guy's Hospital may be quoted:

"I think it may interest you to know that 52 children have to my knowledge been sent to infirmaries during the past three months from the out-patients' department here, suffering from rheumatism or chorea in an acute stage; and 16 have been referred to the Invalid Children's Aid Association for institutional treatment. Even these figures do not represent the total number of acute cases, and the number of children with subacute rheumatism attending as out-patients at intervals would be difficult to ascertain. It must, however, be very large and, on the principle that prevention is better than cure, it would appear that these early cases should be given as much consideration as the acute cases. The children who are seriously ill are usually referred to me by the physicians with a request to provide immediate nursing treatment under skilled medical supervision, followed by prolonged convalescent treatment under supervision to ensure the best results. Few of these children can be admitted to such a hospital as this owing to the pressure on beds here, which precludes the possibility of blocking many with these very prolonged cases. Immediate admission to the infirmary for treatment during the acute stage, with a view to transfer when fit to a M.A.B. hospital, such as Queen Mary's or The Downs, has seemed to us to be the best solution of the problem at present; but, unfortunately, experience shows that the children do not always go to a M.A.B. institution, and we have record of cases in which children have returned to this hospital, for perhaps the third time within a few months, with symptoms of acute rheumatism, having been nursed for short periods in the infirmary and then discharged to their homes. The few that are admitted to the wards here also present a problem as, being the more severe cases, transfer to a suitable institution is especially desirable as soon as the acute symptoms have subsided. Unfortunately the voluntary societies have neither the accommodation nor the funds for many such long and difficult cases."

(3) *Guardians' Hospitals.*—These take a much greater part in the treatment of acute cases than is generally appreciated. Statistics are not published, but in Southwark Hospital in 1924 55 cases of acute rheumatism and chorea in childhood were treated, and 72 days was the average length of their stay. All of them were admitted direct from their homes. Thirty-four of these patients were transferred from Southwark to M.A.B. country hospitals for further treatment. The total number of rheumatic children received at the Board's country hospitals from the guardians' hospitals and discharged in 1924 was 228 (carditis, 120; chorea, 90; debility after rheumatism, 18); the average stay in the country hospital was 136 days for cases of carditis and 90 days for cases of chorea. Children treated at the guardians' hospitals thus have the advantage that their stay can be longer and they have the opportunity of transfer to one of the Board's country hospitals or seaside homes.

*Treatment at M.A.B. Hospitals.*

A memorandum from the Invalid Children's Aid Association submitted to the London County Council in November points out two practical difficulties in obtaining treatment in the Board's country hospitals—viz., the natural objection of self-supporting parents to application to the Poor-law and the almost insuperable difficulties in the path of a direct transfer from the wards of a voluntary hospital to these institutions. It suggests that the Council should take beds in voluntary homes for heart cases, and recommends that direct admission to the Board's hospitals should be arranged to avoid the intermediate agency of the Boards of Guardians. On the latter subject Dr. Pugh has interviewed officials of the Ministry of Health, and gathers that since acute rheumatism may be regarded as a "fever," it is unlikely that any objection will be raised to such patients being admitted to the Board's hospitals in the same way as other fever cases.

*The Ideal Facilities.*—Last year, we may recall, in a report on rheumatic diseases among insured persons, Sir George Newman said:

"The concentration of acute rheumatic cases in a special hospital with cardiological and pathological departments, preferably situated in a country district, would probably be followed by a great advance in our knowledge of the disease and of the prevention of valvular disease of the heart."

He remarked that medical opinion had advised what almost amounted to bed sanatorium treatment for convalescent patients in special homes of recovery. In a report to the Board of Education in September, 1925, he says:

"There can be no doubt that children suffering from rheumatic infection are better for early hospital treatment, and there is need for more institutional accommodation for such children. Preferably they should not be mixed with other invalid children, but dealt with in separate open-air hospitals or residential recovery schools, where 'team' and co-operative research can be undertaken into differential diagnosis and causation, and where suitable treatment, training of the body, education of the mind, and prolonged convalescence are available. The admission to such institutions should be upon a selection basis, and much care, skill, and foresight are necessary to their proper management. Something much more than the ordinary convalescent home is necessary, and obviously the means of treatment will vary for cardiac, choreic, or arthritic cases."

*Dr. Gordon Pugh's Report Adopted.*

Having considered Dr. Gordon Pugh's report, the Metropolitan Asylums Board adopted his suggestion that accommodation for rheumatic children should be provided at Queen Mary's Hospital for Children, Carshalton, Surrey. Application for sanction to this proposal will be made to the Ministry of Health.

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Dr. George Mitchell Winter, of Torquay, who recently resigned his seat on the Torquay Town Council after having been a member for a quarter of a century and deputy-mayor for several years, is to be presented with the freedom of the borough.

# MEDICINE AND THE LAW.

### *Cancer in Tar-Workers.*

A RECENT inquest in Manchester indicated once more the danger of cancer where workmen are employed in contact with tarry substances. The deceased man had worked for 24 years at the Bradford-road gas-works of the Manchester Corporation. According to the evidence reported in the *Manchester Evening Chronicle*, he developed a growth on the knee in 1918, underwent operation at Manchester Royal Infirmary, and resumed work at the end of that year. Another growth formed in 1923, and after a second operation he again took up his work, but finally gave it up at the end of 1924. The coroner, Mr. C. W. W. Surridge, said there was no doubt that death was occasioned by the cancerous growth due to the nature of his work, and a verdict to that effect was returned. The manager of the gas-works, who stated that this was the first case of the kind to come to his notice, though a second case has since been reported, was questioned by the coroner as to the possible use of protective clothing. He replied that there had been difficulty in finding suitable clothing and that rubber had not been found satisfactory. Dr. W. Faith, who also gave evidence, advised that workmen thus employed should be periodically examined in order that early operation might be performed where a growth was discovered. The coroner recommended that some such system of examination should be adopted.

It will be recalled that in November, 1919, a Special Order of the Home Office, made under Section 73 of the Factory and Workshop Act, applied that section (notification of disease) to epitheliomatous ulceration due to tar, pitch, bitumen, mineral oil, or paraffin, or any compound or residue of these substances, occurring in a factory or workshop. Regulations enjoining the use of protective clothing, gloves, &c., in trades specially classed as dangerous have not infrequently been made under Section 79 of the Act. In particular, the Chemical Works Regulations of 1922 contain provisions of this nature, but they are expressly excluded from application to the "manufacture and necessary purification of coal gas, water gas and producer gas for lighting, heating, and power purposes." Pending fresh legislation the special need appears to be, as the coroner observed, that workers should voluntarily submit themselves for examination at the first suspicion of any trouble. It should not be impossible to bring to the knowledge of all workmen concerned the protection which early treatment provides and the danger of delay.

### *Guardianship of Infants Act: a Magistrate's Protest.*

The Guardianship of Infants Act of 1925 may not be a matter of direct professional concern to medical practitioners. But it seems to be serving a useful purpose in reminding persons who are interested in social reforms of the fact that most new measures of social reform throw fresh duties upon either the county court judge or the justice of the peace, and that, in the interests of successful administration, Parliament had better indicate the lines on which those duties are to be discharged. Until last year the Chancery Division, acting as the deputy of H.M. the King, who is the father of his country, had a virtual monopoly of the jurisdiction over the guardianship of infants. The Act of 1925 entrusted a large part of this jurisdiction to magistrates. Thus it happened that Mr. Bingley, the stipendiary sitting at Marylebone police-court, has recently had to adjudicate upon a summons taken out by a husband against his wife for the return to him of their child, aged 4. Now the Act possesses the somewhat unusual feature of a preamble, and the preamble recites the modern acceptance of the principle of sex equality. The Act proceeds to declare that the Courts in deciding upon the custody or upbringing of an infant or the administration of its property shall regard the welfare of the infant as the first and paramount consideration, and shall not take into consideration whether from any other point of view the claim of the father or any right possessed by him at common law is superior to that of the mother, or the claim of the mother is superior to that of the father. The Act also gives the mother equal rights with the father of making applications to the Court. Mr. Bingley is reported by the *Times* to have observed that those who drafted the Act did not seem to have understood the basis of our laws. Apparently, he said, the framers of the Act assumed that a father had powers under the Act, but they did not give him any. It was an instance of the fresh difficulties which the legislature had put upon magistrates in calling upon them to decide matters formerly dealt with by the Chancery Division of the High Court. The Act was extremely vague and did not say that fathers had any right to their children. It was amazing that magistrates should be called upon to construe this Act in these circumstances. He assumed that, as the mother was stated to have equal rights with the father, the father also had certain rights, but the onus put upon magistrates by the Act was terrible.

It may be hoped that other magistrates will not be so easily appalled. The present position is not really so incomprehensible. The common law always favoured the father. The father of a legitimate child was something more than its guardian, for he could determine its religion, which a guardian could not. He had a right to the custody of the child and to the control of its education. Even if he made an agreement before or after marriage by which he purported to surrender this right, the Courts would hold such agreements to be void as against public policy, though in 1873 the mother's right to custody of a child under a separation deed was recognised. In 1839 the Court of Chancery was given power to take a child away from the father and give it to the custody of the mother until it was 7 years of age. In 1873 the age-limit was raised to 16. In administering these provisions the Chancery Court had special regard to the interests of the child and to the conduct of the father. In 1895 courts of summary jurisdiction were authorised to give a married woman the legal custody of her children under 16 as against the father, and, of course, orders as to the custody of the children have long been a well-known feature of matrimonial causes. Thus, in spite of its acknowledgment of sex equality, the new Act is not so very revolutionary after all. Indeed, the principle that the interests of the children shall be the paramount consideration with the Court has been an express doctrine in Chancery for nearly 50 years. No doubt it is true that the common law rights of the father still counted for something. For instance, the Chancery Courts would hold that a father living in constant debauchery and open adultery was unfit to have the control of his children; on the other hand, occasional incontinence or even living in adultery, provided that the children were not brought in contact with the adulterers, was held no ground for interference with him. It was this inequality of the sexes, this surviving modicum of the father's common law rights, which the 1925 Act set itself—a little rhetorically—to remove. Henceforward the magistrate is not to favour either father or mother as such, but merely to consider whether the one will do the child more good than the other. As for the common law rights of the father, whatever they may have been, the Act says they may now be disregarded. As for the legal learning of the Court of Chancery, it is not book knowledge that our magistrates will require in administering the delicate and difficult duties now imposed upon them.

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NORTHERN INFIRMARY, INVERNESS.—The Mackintosh of Mackintosh has issued an appeal for £100,000 for the reconstruction, extension, and endowment of the Northern Infirmary, Inverness, which is the general hospital for an area comprising the counties of Inverness, Nairn and Moray, Caithness, Sutherland, and Ross and Cromarty. The infirmary was built a century and a quarter ago and is now, in spite of additions and improvements, inadequate and entirely out of date.

## VIENNA.

(FROM OUR OWN CORRESPONDENT.)

*Dichloren as an Anæsthetic.*

Prof. Paul Albrecht discussed recently before the Vienna College of Practitioners the advantages of *dichloren* (dichlorethylene) as a general anæsthetic. He has tried it in more than 500 cases during the last two years. He employs two mixtures; the first contains 1 part dichloren to 2 parts pure ether, and the second, 1 part dichloren to 3 parts ether. Administration is preceded by a hypodermic injection of 0·02 g. (nearly ⅓ gr.) of morphia and 1 mg. (1/70 gr.) of atropine half an hour before operation. Similar preparation, with appropriately smaller doses, is required in children. The new anæsthetic produces no fall in blood pressure and no damage to the tissues. In half the cases there is no excitement, and the patients are easily brought under anæsthesia. Sometimes twitching is noticed, but the only unpleasant complication observed has been spasm of the glottis or diaphragm, which occurred in 5 per cent. of the cases. Albrecht advises the open (drop) method, starting with a few drops and then increasing the rate of flow. At the end of 5–10 minutes there is always relaxation of the muscles sufficient for the most extensive abdominal operation. The use of dichloren markedly diminishes the amount of ether required, so that no more than about 30 g. of dichloren and 90 g. of ether are used per hour. Eighty-eight per cent. of all his operations with the new method were absolutely free from any inconvenience. In 5 per cent. the spasms mentioned above occurred—they were removed by increasing the rate of flow of the anæsthetic—and in another 5 per cent. there was cyanosis, or excitement, or lack of relaxation. These troubles were mainly seen in alcoholics, neurasthenics, or excessive smokers. He found that lobelia gives excellent results in cyanosis; a hypodermic of 0·02 g. (⅓ gr.) restores breathing rapidly. In one case, a woman of 72 years, operated on for incarcerated umbilical hernia, death occurred during dichloren anæsthesia; a severe extensive fatty degeneration of the myocardium was found at the post-mortem. Awakening after anæsthesia is rapid and free from any inconvenience in over 70 per cent. of cases. Pulmonary complications after dichloren are seen in 8 per cent. of cases, compared with 10 per cent. after the old ether-chloroform method. Whilst chloroform damages the vasomotor system, the myocardium, and the parenchymatous organs—not to mention its delayed results—dichloren does not produce any of these effects.

*Death of Two Scientists.*

The medical faculty of the University of Vienna has sustained a severe loss by the death of Prof. Julius Bartel and Prof. Hans Pollitzer, two of its youngest but most active members. Bartel's name is well known to students of pathological anatomy and especially to those working on tuberculosis and constitutional disorders. He reached only the age of 52 years, but during the last 25 years was the actual, though not the nominal, head of the post-mortem room of the Vienna General Hospital. Whilst still a young student he published a series of papers on the morphology of tumours and on endocarditis, and later, at the suggestion of Weichselbaum, investigated the mode and portals of bacterial infection, especially by tuberculosis, and represented Austria at the Sixth International Congress on Tuberculosis in Washington. Prof. Bartel paid great attention to the lymphatic system and to the problem of constitution. He combined clear observation with speculation, and thus turned to the influence of climatic factors on health and mortality, publishing an outline of a work on this subject which his sudden death has not allowed him to complete. Prof. Pollitzer, who was only 48, was responsible for advances in the science of hæmatology, especially from the morphological standpoint. Although dangerously ill—he suffered from progressive tuberculosis of the larynx and lungs—he was continuing his researches on parenteral albumen, and on the action of peptonates, especially as a styptic in hæmoptysis, when his death occurred.

# The Services.

### ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. J. Whelan is placed on Retd. List.

Surg. Comdr. R. Kennedy is placed on retd. list with the rank of Surg. Capt.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Lt. G. E. Spero to be Surg. Lt.

### ROYAL ARMY MEDICAL CORPS.

Lt.-Col. D. L. Harding retires on retd. pay.

Maj. J. M. M. Crawford to be Lt.-Col., vice Lt.-Col. D. L. Harding.

Maj. O. W. McSheehy to be Bt. Lt.-Col.

ARMY RESERVE OF OFFICERS.

Lt.-Col. G. O. Chambers, retd., to be Lt.-Col.

Maj. J. Vallance, retd., to be Maj., and Maj. C. J. H. Sharp, late Temp. Capt., R.A.M.C., to be Maj.

TERRITORIAL ARMY.

Capt. W. J. H. Davies, having attained the age limit is retd., and retains his rank.

### INDIAN MEDICAL SERVICES.

Kundan Lall Jetly to be Temp. Lt.

Capt. Pirojsha Merwanji Antia is transferred to the temp. non-effective list.

The Government of the Central Provinces invite applications from Indian or Anglo-Indian women graduates for a State Scholarship of £300 per annum, plus 7½ per cent. bonus, tenable in the United Kingdom or foreign countries. The scholarship will be awarded for study or medicine or other professions, and will be tenable for three years in the first instance with the possibility of extension. The services of Capt. G. R. McRobert, Wazerestan District, are temporarily placed at the disposal of the Government of Burma. Lt.-Col. G. Macpherson, professor of ophthalmology in the Grant Medical College, has returned to India from long leave.

### DEATHS IN THE SERVICES.

Fleet Surg. Alexander George William Bowen, R.N., retd., who died on Jan. 4th at Plymouth, aged 62, joined the Royal Navy as surgeon in 1891, and served in the gunboat *Partridge*, in the West Indies, and at the Plymouth Division, Royal Marines. He became staff surgeon in 1899, and in 1901 served in the sloop *Beagle* on the Cape and West Africa stations. Later he joined the cruiser *Amethyst* in the Atlantic Fleet, and in 1907 the battleship *Canopus*, when he was promoted to fleet surgeon. He also served in the battleship *Agamemnon*.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 2ND, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week: Small-pox, 203 (last week 178); scarlet fever, 1985; diphtheria, 1069; enteric fever, 44; pneumonia, 1807; puerperal fever, 55; cerebro-spinal fever, 4; acute poliomyelitis, 2; encephalitis lethargica, 32; dysentery, 8; ophthalmia neonatorum, 93. The figures in nearly every case are substantially greater than those of the previous week, which, as we have already remarked, were reduced by the holiday season. There were no cases of cholera, plague, or typhus notified during the week.

Of the 203 cases of small-pox, 99 (last week 106) were reported from the county of Durham; 29 (last week 39) from the county of Derby; and 54 from the West Riding of Yorkshire, 48 of which occurred in Rawmarsh.

*Deaths.*—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 87 from measles, 10 from scarlet fever, 44 from whooping-cough, 53 from diphtheria, and 123 (previous weeks 85 and 132) from influenza. In London itself there were 44 deaths from measles, 22 from diphtheria, 20 from diarrhœa and enteritis under two years, and 27 from influenza.

# Correspondence.

"Audi alteram partem."

## FUNCTIONAL OR ORGANIC?

*To the Editor of* THE LANCET.

SIR,—Regarding the thoughtful article under this title by Dr. C. P. Symonds published in THE LANCET of Jan. 9th, may I be allowed to emphasise the important part played by the blood in the genesis of functional nervous disorders? It is of the utmost importance that the physician should fully realise the potent influence of the blood on the feelings (=the sensations and emotions). It would scarcely be an exaggeration to say that the entire range of morbid feelings, both sensory and emotional, may be produced by morbid states of the blood. Nothing better shows this than the great variety of morbid feelings which can be produced by drugs. The peri-neuronic lymph plays, as it were, upon the mind-organ, either upon the grey matter directly or upon the sensory end-organs—these constituting a species of psychic keyboard—and by virtue of its manifold and ever-changing constituents causes the feelings to be modified in an infinite variety of ways.

Bearing in mind how largely the feelings bulk in the mental personality—that pleasure and pain, happiness and misery, the sense of existence itself (panæsthesia as we may term it), are all compounded of feelings, remembering also the influence of the feelings on thought and on conduct, it will be seen how profoundly the whole mental fabric is influenced for good or ill through the blood. Consider, for instance, the influence of the blood on (*a*) the special sensations, (*b*) ot hersensations, (*c*) the appetites, (*d*) panæsthesia, (*e*) the emotions. (*a*) All the special sensations may be influenced through the blood: functional blindness may occur in uræmia; deafness, tinnitus, and giddiness in a variety of toxæmias. (*b*) Other sensations: pains, general or local, are common in the toxæmias of febrile diseases, such as influenza; neuralgia is common in anæmia, and has, indeed, been described as "a prayer for healthy blood"; headache and other morbid cephalic sensations (e.g., sensations of pressure, heaviness, lightness, bursting, burning, crawling) are common accompaniments of the morbid blood states resulting from disturbance of the endocrine function of the ovaries; headache is also a common feature of many different kinds of toxæmia, such as those of the specific fevers, uræmia, indigestion, and drugs; pruritus and other cutaneous dysæsthesias may result from morbid blood states; a feeling of fidgetiness and many other muscular dysæsthesias may accompany morbid blood states. (*c*) The appetites: thirst, hunger, erotism (e.g., the rut) are largely dependent upon the state of the blood; normal sleepiness is chiefly produced through the blood, and the influence of the hæmic factor in this direction is also observed in the drowsiness of indigestion and the torpor of fever. (*d*) Panæsthesia: Seeing that individual sensations are profoundly influenced by the blood, it follows that the panæsthesia, which is a compound of them, is equally susceptible to hæmic influence. There is abundant evidence that the feelings of wellness and illness alike are delicately responsive to subtle changes in the blood. (*e*) The emotions: The influence of the blood on the emotions is equally profound. When the condition of the blood is such as to cause a pleasant panæsthesia pleasant emotions are apt to arise, and contrariwise as regards an unpleasant panæsthesia. It is probably not very wide of the truth to say that an intensely pleasant panæsthesia is incompatible with a downright unpleasant emotion, and, contrariwise, that an intensely unpleasant panæsthesia is incompatible with an acutely pleasant emotion. A pleasurable panæsthesia, especially the sense of exuberant well-being, tends to call forth joyousness and to foster a belief in self. It constitutes the fundamental psychic characteristic of the megalomaniac, whether as met with in everyday life or in the asylum. A painful panæsthesia in the shape of profound malaise tends, on the other hand, to evoke a feeling of gloom and self-distrust.

The blood may exercise a more specific influence on the emotional nature. Consider the apathy of the myxœdematous patient, the intense nervousness and agitation of the sufferer from Graves's disease, the violent emotionalism exhibited during the period of the rut, the altered emotional tone at the menstrual epoch and the climacteric, the irritability of the naughty child with the bad breath, or of the gouty man on the eve of his attack, the elation produced by alcohol, and the peculiar emotional effects of certain drugs, such as cannabis indica. No more striking instances of the effect of the blood upon emotionality could be adduced than those afforded by Graves's disease, the rut, and alcohol; the altered state of the blood in Graves's disease may change a calm, level-minded, self-disciplined, strong-willed woman into an excitable, agitated being, startled at the least noise and even by her own shadow, and incapable by any effort to control the raging storm within her. At the period of the rut the animal becomes restless, excitable, and (though ordinarily perhaps quite docile) ill-tempered and even dangerous, ready to fight its rivals to the death. As regards alcohol its emotional effects are manifold; it may make a shy man bold, a reserved man expansive, a mild man combative, a depressed man gay, a surly man genial, a cold man ardent, a close man generous. There is, indeed, hardly limit to the emotional effects which may be produced by this and kindred substances. The essential clinical features of most minor mental disorders (psychasthenia, hysteria, borderland insanity) is a morbid emotional state, and I cannot doubt that the latter is chiefly due to a morbid state of the blood, in which disturbed endocrine function often plays a prominent part.

A person's emotional temperament is, in large measure at least, determined by his blood. The reason why one person feels habitually well and in good spirits and another poorly and depressed is not so much because the mind instrument is in the one case specially adapted for mirthful music and in the other for minor harmonies, as because it is differently played upon by the blood in the two cases. It is scarcely an exaggeration to say that if two persons were to exchange bloods they would at the same time exchange temperaments. We are, I think, bound to conclude that individual differences in mental temperament are largely determined by differences in the compositions of the blood. And just as the habitual emotional note which we term mental temperament is largely influenced by the blood, so also are those transient changes in it from day to day and hour to hour which we term moods. Our moments of spontaneous depression result in the main from the action of depressants; our spells of exuberant well-being, of exhilaration, self-assurance and vaulting ambition, when all the world seems fair and no obstacle too great to surmount, no goal too difficult to win, are due to mild auto-intoxication produced by blood stimulants. May not genius owe its spells of inspiration to their influence?

As regards the influence of the psychogenic factor in neuroses and psychoses, it has to be remembered that psychic traumata, whether in the form of severe shock or petty household worries, by disordering metabolism, tend to vitiate the blood, thus setting up a vicious circle. The great desideratum for the nervous patient, indeed for all of us, is to cultivate the tranquil mind.

I am, Sir, yours faithfully,

Harley-street, W., Jan. 9th, 1926. HARRY CAMPBELL.

## IDIOPATHIC RISE OF TEMPERATURE.

*To the Editor of* THE LANCET.

SIR,—Your Paris correspondent recently gave (THE LANCET, Dec. 26th, 1925, p. 1357) a report of Dr. Remlinger's communication to the French Academy of Medicine on this subject. The syndrome is, I think, the same as that described by me in 1920 as "continuous fever of sympathetic origin" (*Annales de*

*Médecine*, 1920, vii., 450). The only difference consists in the longer duration of the rise of temperature in my own cases. For weeks, for months, for years even, our patients showed elevation of temperature for which no cause could be found, no tuberculosis, no general infection, no focal infection. Temperature subsided when patients ceased to worry over it or to use the thermometer; it subsided also with rest, removal to a cool country, and various psychotherapeutical measures. The characteristic feature in my cases was an evidence of intense excitability of the sympathetic system detected by various pharmacological tests.

I attributed this "constitutional hyperthermia" to an inherent instability of the heat-regulating centre which, as is generally admitted, is part of the sympathetic system. On account of this instability there is a lowering of the threshold of the factors which raise normal temperature such as fatigue and emotion. I remarked that this instability of the thermic centre may be dependent on the chemical regulating organs of body heat, that is on the endocrines. It would be interesting to me to know if this syndrome is met with in England. I am of Dr. Remlinger's opinion that climatic factors play a great rôle in its appearance; in Greece the syndrome is met with more frequently in the hot months. It is of common occurrence in Greece. During the war, as consulting physician to the Greek army, I often had difficulty in distinguishing this "sympathetic fever" from tuberculosis.—I am, Sir, yours faithfully,

A. P. CAWADIAS, M.D., M.R.C.P.,
Senior Physician and Lecturer for Clinical Medicine,
Jan. 5th, 1926. Evangelismos Hospital, Athens.

## LAND REFORM AND SLUMS.

*To the Editor of* THE LANCET.

SIR,—Housing is one of the greatest medical problems. The housing of the people is much behind the requirements of the day, and large numbers are still very badly housed. Go to places like Becontree in Essex and Yardley or Stechford, suburbs of Birmingham, where houses for the working classes have been put up by the thousand in the last few years, and see them. It is true they have generally provided quarters which are far superior to those which many of the occupiers had to inhabit previously. But measure their capacity, inquire what is their rent, taking into account the expense of travelling to and from the place of work, examine the qualities they possess for enduring. Compare these little houses or flats—hundreds of them only three-roomed—and the materials used in them with some of the many small houses of Georgian or early Victorian days, or with little country cottages still in use, put up two or three hundred years ago. Ask any architect who has built for the well-to-do, and also participated in one of these schemes for housing the workers, what are his feelings on the cheese-paring, cost-cutting, cold and calculated restrictions which are imposed before they are erected, restrictions unfortunately necessary under present circumstances. Such comparisons bring the conclusion that what are built to-day will be looked upon as meagre and mean within a generation.

But what about the real slums now existing, and what about present-day overcrowding? Will the schemes of the Liberal Land Committee, should they come to fruition, really end these evil things soon? Is it on the right track to make a clear distinction between urban and agricultural land? To-day, both in law and in every-day practical usage, the distinction is ever arbitrary and changing. The latest available returns show over 14,000 condemned houses still in occupation, and condemnations are lenient. Although roughly half a million houses have been completed since 1919, that does not make up for the previously existing shortage, and the present rate of constructiou is in many cities insufficient to cope with the rate of increase of population. Manchester, for example, has an admitted shortage of 20,000 houses now, yet is to build only about 2000 a year. In Scotland there is an accumulated deficit, it is calculated, of 150,000 houses, the annual requirements of the country are about 10,000; yet in the year 1925 it is expected that not more than 8500 will have been finished. In the county of Durham only about 10,000 houses altogether have been built since the end of the war, during which period an increase of population of approximately 70,000 has occurred.

The idea of the garden city was put forward by Charles Kingsley as long ago as 1857. Yet to-day there are actually only two garden cities in existence, not counting Port Sunlight and Bournville. The clearance of the notorious London slums in the Tabard-street and Bradey-street areas began over 30 years ago. Yet to-day in neither area is the clearance by any means complete. Since the London County Council began it has spent over £1,000,000 on slum clearances. To be a measure of public health any scheme of land reform must bring about quicker results than these. It seems improbable that any scheme can succeed which lays an increasing burden upon the public purse, and does nothing to diminish costs or to increase wages and the number of building operatives. By applying tests of this sort the value can be appraised of any reform purporting to be a measure likely to improve the public health.

Let us hope that the Liberal Land Committee's plans will pass these tests. The Committee has worked hard and has set forth the subject with frank breadth of view, grasp of essentials, and a wealth of detail which is wholly admirable. But the remedies suggested seem complicated to the uninitiated and are, apparently, not satisfying to the party's supporters. Mr. Lloyd George himself, with characteristic skill, has assumed the power to give the people of England better housing, a more spacious life if only his remedies are adopted. He sincerely regards his land campaign as a public health measure. But many doctors have contracted the habit of examining with caution the plans of politicians, and it would be well to investigate afresh the whole subject of the connexion between land reform, better housing, and public health. If that is done much good will accrue. Should the Liberal Land Committee's plans be found to pass the suggested tests, there is no reason why they should not be taken up irrespective of party.

I am, Sir, yours faithfully,

LUCIUS SEVERUS.

## EMETINE IN THE TREATMENT OF HEPATIC ABSCESS.

*To the Editor of* THE LANCET.

SIR,—With reference to the article on this subject by Dr. P. H. Manson-Bahr and Dr. R. M. Morris in your issue of Jan. 9th, I think the following opinions of Dr. Manson-Bahr should be quoted. In the *Tropical Diseases Bulletin* for January and April, 1925, Dr. Manson-Bahr accepted the accuracy of Captain Fry's diagnosis without demur, although he now finds the records not very convincing. As regards treatment; in the *Bulletin* for January, 1925, Dr. Manson-Bahr says: "Surgeons should make the use of emetine an essential part of pre-operative preparation, *if not the sole treatment of liver abscess* . . . . It would appear that aspiration could be dispensed with in many such cases of amœbic abscess." And in the *Bulletin* for April, 1925, he states that "he has recently confirmed the view that emetine therapy alone can promote absorption of pus from a liver abscess without surgical interference. . . . In a recent case the patient developed a fourth abscess, three having been drained, *the very pronounced physical signs and symptoms of which were resolved in a short time by emetine combined with E.B.I.*" (The italics in both cases are mine.) The opinions given in your current number and those just quoted are completely contradictory, and one is left guessing as to the cause which, after Dr. Manson-Bahr had advanced from scepticism to understanding, has prompted this public confession of his return to his first state of mind.

I am, Sir, yours faithfully,

London, Jan. 11th, 1926. V. S. HODSON.

## STETHOSCOPY OF THE HEART.

*To the Editor of* THE LANCET.

SIR,—Dr. Otto May's denunciation of the dangers of stethoscopy should not have been directed at the general practitioner, but at the teachers in medical schools for misdirecting their students as to the cause of the sounds associated with the movements of the heart. For nearly 100 years it has been taught that the first sound of the heart is due mainly to contraction of the heart muscle, whereas it is known that a muscle when it contracts produces no sound. The second sound is said to be due to the banging together of the cusps of the valve, yet if they be eaten away by disease the sound is magnified into a marked murmur. If the cause of the heart sounds be not known, how can the cause of their modification be properly assessed?

I am, Sir, yours faithfully,

Swansea, Jan. 11th, 1926. G. ARBOUR STEPHENS.

## THE VENTILATION OF ENGINE-ROOMS IN MOTOR VESSELS.

*To the Editor of* THE LANCET.

SIR,—In view of the enormous increase in the proportion of tonnage now fitted with motors, and the still higher proportion probable in the future, I venture to bring forward a human aspect in their respective economics which may have far-reaching consequences. I refer to the injurious effects I have noticed of the vapours, inseparable from the Diesel and similar motors, upon the engine-room staffs. These are so obvious that at the end of a voyage anyone could separate with accuracy the engine-room staff of a motor vessel from that of a steamship. Not all are equally affected, but an occupation which causes headache, drowsiness, vomiting, loss of appetite, an evident pale yellow tinting of the skin, and a great susceptibility to an obstinate type of furunculosis, is likely to have a permanent ill-effect upon the strongest constitution in time.

The obvious cause is inadequate ventilation, but the prevention is anything but simple. In the ordinary way ships are more difficult to ventilate than any building, and here a super-excellent scheme is necessary. In the meantime motor vessels are being constructed with more or less the same ventilation as exists in the engine-rooms of steamships, which falls far short of the motor vessels' requirements. At present air is propelled by fans from outside into the engine-room and heated if necessary, as it must be hot because the intake of air for the cylinders is directly from the engine-room itself. The vitiated air from the engine-room with the vapours escapes through the skylights and the exit ventilators, their efficiency depending upon the wind speed caused by the motion of the vessel. The vapours are densest when the vessel is manœuvring in port, and at this time the ship's speed is at its lowest. In every engine room, moreover, there are numerous obstructions to the free movement of the air, such as tanks and orlop decks, which act as baffle-plates and cause pockets of stagnant air. The escape for the fumes from the crank case, which are particularly evil-smelling, opens directly into the engine-room instead of outside. The engineers themselves are partly to blame because they invariably leave the small cock on the exhaust from each cylinder open, so that any cylinder misfiring can be detected at once. There are many other defects, but these serve to illustrate the conditions existing.

I suggest that the whole question of the ventilation of the engine-rooms of motor vessels requires careful consideration, as I am convinced that the present conditions are definitely adverse to the health of the engineers.

I am, Sir, yours faithfully,

A. G. G. THOMPSON, M.D.,

Assistant M.O.H., Liverpool Port Sanitary Authority.

Jan. 11th, 1926.

# Obituary.

## JOHN GRAY McKENDRICK, M.D., LL.D. ABERD., F.R.C.P. EDIN., F.R.S.

THE death of Prof. J. G. McKendrick at Glasgow on Jan. 2nd removes a man who helped to lay the foundations of modern physiology and in whose life character and ability were wholly responsible for success.

John Gray McKendrick was born at Aberdeen in 1841. He was early left an orphan and spent his school days at Braco, in Perthshire, where, at 13, during a long summer, he herded sheep from 5 in the morning until 8 at night. At 14 he entered the office of a lawyer in Aberdeen, to whom he was apprenticed at a pittance; for nearly two years his landlady managed to feed and clothe him for 5*s*. 6*d*. a week. In spite of long hours at the office he began an elaborate course of home study; he was a good swimmer, played cricket, and spent his annual two weeks' holiday at Braco helping in the harvest. A great love of Nature led him to collect plants and marine animals along the shores of the Bay of Nigg, and he started a little aquarium which evidently brought him some repute, as he was asked to show it at the British Association meeting in 1859, when the Prince Consort was chairman. There he saw Gould, Richard Owen, Huxley, Roderick Murchison, and Faraday; already science had begun to call him. Rising often at 5 A.M. and working till his office opened at 10, McKendrick passed the Medical Preliminary at Aberdeen in 1861. Dismissed by his lawyer master because he dallied at a concert where Jenny Lind was singing, he moved to Edinburgh, entered the classes in anatomy and natural history, and eked out a living by working eight hours a day for the *Daily Review* at 12*s*. a week. "The hours at the University," he said, "were the delightful part of the day. They made up for all the drudgery." Yet the teaching and examinations of that time were far from satisfactory. There were no practical classes, few demonstrations, and no familiarity with apparatus. "But," wrote Prof. McKendrick, "there was a sound knowledge of general principles and a strong belief in one's self. In Edinburgh there were no fewer than seven theories of inflammation in vogue amongst the examiners!" At Edinburgh he heard Goodsir lecture and saw Turner and Joseph Bell demonstrate. His teachers were amongst the giants of those days: James Miller, the surgeon, Simpson and Syme, whose controversy was at its height, and Laycock in the chair of medicine.

McKendrick's struggles were pathetic—but he took Goodsir's medal in 1863, and was a prizeman in surgery, obstetrics, and medicine, though zoology remained his favourite study. In 1864 he graduated as M.D., with distinction, at Aberdeen, and after some months at the infirmary at Chester, where he saw 200 cases of small-pox, became surgeon to the Eastern Dispensary at Whitechapel, where patients were dealt with at the rate of one every two minutes. This did not attract him, and he was always on the look-out for other work, applying for the post of prosector at the Zoological Gardens, a practice in Sark, a job on a tea plantation in Assam, and work in Earlswood Asylum. At last he was placed on a short list of 87 candidates for a house surgeon appointment at Fort William, and having told the trustees that he was "brought up in the Established Church; but when I came to the years of discretion, I joined the Free Church," was given the post. In Fort William he spent four happy years, giving his first lectures on scientific subjects to the people around; here he joined the Volunteers, and here in 1865 he married Miss Mary Souttar, of Aberdeen.

In 1869 McKendrick by happy chance met Hughes Bennett and went to Edinburgh as his assistant; his duty was to teach the subject of histology, then recently introduced. Amongst his students were Miss Jex-Blake, Sir William Watson Cheyne, Prof.

Cash, Prof. Ewart, and Sir George Beatson. Here he lectured to the first physiology class wholly composed of women. Disappointed of the chair of physiology on Bennett's retirement, McKendrick offered a course of 40 lectures to women only, and 150 of them enrolled. Soon afterwards he met James Dewar, who suggested coöperation in the research which led to the discovery that an electric current is produced in the optic nerve when light falls on the retina. This work was published in 1873; for the first time a current of action had been demonstrated in a sensory nerve as the result of the normal stimulation of its end organ. Holmgren, of Upsala, made the observation independently almost at the same time. Dewar and McKendrick later investigated the physiological action of chinoline and certain pyridine bases, and this work was amongst the first research which correlated chemical constitution and physiological action.

In 1872 McKendrick was elected F.R.C.P. Edin., and in the same year visited Germany and made the acquaintance of Helmholtz, whose memory he ever afterwards revered and whose life he wrote. Then, in 1876, came his appointment as Professor of Physiology at Glasgow, which he held until 1906. He found a lecture room, a sphygmograph, a few old microscopes, and some diagrams; on these he built up the department of physiology which preceded the present institute. He was the most pleasing of lecturers, and in 1881 was appointed Fullerian Professor of Physiology at the Royal Institution, where he gave Friday evening discourses and Christmas lectures to children. In 1884 he was elected Fellow of the Royal Society, and later served on the Council, holding also numerous university examinerships.

Prof. McKendrick's written works have the same pleasant flavour as his spoken words. To the Encyclopædia Britannica he contributed much, and in 1878 published "Outlines of Physiology," followed ten years later by a "Text-book of Physiology." Conjointly with one of his assistants, Dr. William Snodgrass, he produced "The Physiology of the Senses"; physiological acoustics had always interested him especially. He also published poems, and his love of music and poetry contributed largely to his singularly attractive personality. A savant and a physician, he was also a real naturalist in the sense given to that term by his friend Sir William Gairdner, "a humble, reverent, and exact follower and student of Nature." A man of distinction himself, he was privileged, as he said, to count Lord Kelvin, John Caird, and Lord Lister among his friends.

Prof. McKendrick's wife died some years ago. He is survived by two sons, Dr. J. Souttar McKendrick, of Glasgow, and Dr. Anderson McKendrick, of the Royal College of Physicians' Laboratory, Edinburgh, and late colonel in the Indian Medical Service; and also by a daughter, the wife of Dr. A. A. Warden, of Cannes. His other daughter, who was married to the Rev. R. Bruce Taylor, Principal of Queen's University, Kingston, Ontario, died some months ago. He was buried on Jan. 6th in the family vault in Cowie Churchyard at Stonehaven. It was at this little fishing town overlooking the North Sea that Prof. McKendrick used to spend his summer holidays, and it is largely to his influence that it owes its popularity.

## JOHN BARTHOLOMEW GILES GIDLEY-MOORE, L.R.C.P. LOND., M.R.C.P. EDIN.

Dr. Gidley-Moore, who died last week at his residence at Fyfield House, near Ongar, was a familiar figure locally as medical officer of health, ambulance instructor, and member of the board of guardians. He qualified in 1872 from St. George's Hospital and spent 35 years in country practice; his retirement from active work of this kind was only the occasion for greater activity in other spheres, for he was chairman, treasurer, and correspondent of the parish schools, vice-chairman of the parish council, and an original member of the Essex Insurance Committee. Dr. Gidley-Moore was held in respect for his strong views on social matters which he held irrespective of personal advantage. To uphold the principle of individual thrift he would accept no superannuation for himself or sanction it for others, and he was an influential member, sometime vice-president, of the Poor-law Medical Officers' Association. In his ambulance work he ultimately became senior surgeon of No. 1 Division and held both Diamond Jubilee and Coronation medals for long service.

## GERALD GODFRAY GIFFARD, K.C.I.E., C.S.I., M.R.C.P. LOND., M.R.C.S. ENG.

WITH the death in London on Jan. 5th of Major-General Sir Gerald Giffard, on the eve of his sixtieth year, the Indian Medical Service loses one of its most distinguished and many-sided officers.

Gerald Godfray Giffard was born in Guernsey on Jan. 19th, 1867, the son of Mr. Agnew Giffard, resident engineer of the harbour works, who was drowned off Sark in the following year, and a nephew of Sir Henry Giffard, K.C. He was educated at Elizabeth College, Guernsey, and studied at St. Bartholomew's Hospital, qualifying with the conjoint diploma in 1889, and taking the M.R.C.P. a few years later. In 1890 he entered the Indian Medical Service, becoming captain in 1893, major in 1902, lieut.-colonel in 1910, and major-general in 1918. He accompanied the Chin Hills and Manipur Expeditions, and being a keen and hardworking officer was marked early for promotion and was translated to Madras in 1897 as resident surgeon to the General Hospital. He became district medical and sanitary officer at Chingleput, and in 1901 was appointed to his first chair in the Madras College, that of materia medica. During the following years he filled in succession the chairs of surgery and midwifery, with the added responsibility of directing the Government Maternity Hospital at Madras. By this time he had become known as a skilful surgeon and gynæcologist as well as a sound practical teacher of midwifery, and it was largely owing to his initiative and persistent effort that Madras came into possession of the finest and best equipped children's hospital in the East. As principal of Madras Medical College he was responsible for numerous improvements in its organisation and work. During the war Giffard filled a number of important positions. In 1915 he was in command of the Madras Field Hospital Ship, a highly organised and elaborately equipped institution with a brilliant medical staff chosen from the Madras Medical College. In those days, now happily forgotten, Giffard was one of the first to recognise the shortcomings of the medical field organisation and used his influence to foster the inquiry of the Mesopotamia Commission which followed in 1917. This inquiry was doubly welcome to him, for it was the means of altering the whole attitude of the Government towards the medical requirements of the army in India. Giffard was transferred to the Northern Command in 1917, when he controlled the large Indian general hospital at Rawalpindi until his selection (at an unusually early age) as surgeon-general with the Government of Madras took him back to the scene of his earlier work.

Sir Patrick Hehir, who was associated with him in one way or another for over 35 years, appraises Sir Gerald Giffard as an administrator with a well-balanced mind and a wide grasp of the many complex and conflicting medical problems that beset statesmen in India. "One of my most pleasant recollections," writes Sir Patrick Hehir, "is the fine tone that existed in the whole of the Madras Medical Service when I visited that city in 1918. Giffard seemed to me to be the Little Father of a large and capable medical family. We worked together on the Medical Services Committee to which Giffard was a tower of strength. One of his last great efforts was to get the Madras Government to subsidise private medical men to go into practice in rural areas. Had this policy

taken effect throughout India, it would, within a decade, have altered for the better the whole aspect of the medical care of the indigenous masses. Giffard was a fine personality, a deep and clear thinker, a bold and courageous medical administrator, a true and reliable friend, and a most cheerful companion. In his passing many like myself have lost a valued friend."

After his return from India Sir Gerald Giffard retired to Guernsey, living at Lafosse, St. Martin's, where he became honorary medical superintendent to the Lady Ozanne Maternity Home and general secretary to the local branch of the League of Nations. Sir Gerald Giffard married in 1898 Melicent, eldest daughter of James Grose, C.I.E., I.C.S., by whom he had two sons and two daughters.

### WILLIAM NETTLE, M.R.C.S. Eng., J.P., V.D.

Dr. Nettle's death at Liskeard at the age of 77 years removes a well-known Cornish practitioner who had throughout a long life taken his full share in all phases of public life. Born near St. Austell, he was apprenticed when still in his teens to Dr. Alfred Prideaux, a Bartholomew's man, so that it was natural for young Nettle, in his turn, to do his medical study at St. Bartholomew's, qualifying from there in 1870 and returning—after a resident appointment at the Royal Cornwall Infirmary, Truro—to join Dr. Prideaux in partnership. Not long afterwards he married Kathleen Vivian Prideaux, his partner's third daughter, and succeeded later to the whole of a large practice. In his later years of practice Dr. Nettle was also medical officer of health for the borough and rural district of Liskeard, surrendering for this purpose his seat on the town council, of which he had been a member for ten years and mayor on four occasions. During the last few years of his life he was a member of the board of guardians and for a long time he was both county and borough magistrate. As a Churchman he stood for progress; he was vicar's warden for 33 years and a regular sidesman. He was a member of the Masonic order for more than 50 years and actively espoused the cause of Masonic charities. His connexion with the Volunteers began with a surgeon-lieutenancy to the 2nd Volunteer Brigade and he ultimately became P.M.O. to the Devon and Cornwall Infantry Brigade, retiring with the honorary rank of Lieut.-Colonel R.A.M.C. About six months ago he had a seizure from which he never completely recovered. He leaves a widow, a married daughter, and five grandchildren.

THE LATE DR. ALEXANDER DICK.—Dr. A. Dick, who died at his house at Llanelly on Dec. 27th, was 47 years of age and had been in poor health for some time. He was born in County Down and was educated at Queen's College, Belfast, and Edinburgh University, taking the Scottish triple diploma in 1905. Soon afterwards he went into an assistantship at Llanelly; then he moved to Cardiff, but returned later to Llanelly, which he did not leave again except on war service. For several years he held a captain's commission in the Royal Army Medical Corps, being attached to the 4th Welch Territorial Battalion. Dr. Dick was a prominent Freemason. He was a popular and genial man, whose happy disposition brought him many friendships. He leaves a widow and three children.

DONATIONS AND BEQUESTS.—Towards the appeal for £500,000 for the reconstruction and development of the University of Leeds, launched in October, 1925, during the past three and a half months £238,000 have been received.—The King, patron of the King Edward Hospital Fund for London, has sent his annual subscription of £1000 to the Fund.—Mr. George Travis, of Wardle, near Rochdale, left £1000 each to the Oldham Royal Infirmary and the Rochdale Infirmary, and £500 to the Memorial Homes for Crippled Children, Rochdale.—Mr. Thomas Brett Daniell, of West Bergholt, Essex, who left estate of the value of £45,680, left a bequest of £600 to the Royal Eastern Counties Association and many legacies, and the residue to his sister for life, and at her death, after the payment of certain bequests, the ultimate residue between the Royal Eastern Counties Association for Idiots, the Essex County Hospital, Colchester, and Arthur Winsley's Charity, Colchester.

# Medical News.

UNIVERSITY OF LONDON.—At recent examinations the following candidates were successful:—

M.D. EXAMINATION.

*Branch I., Medicine.*—Davis E. Bedford, Middlesex Hosp.; Frank Brockington, King's Coll. Hosp.; Gwenvron Mary Griffiths, London Sch. of Med. for Women; David Krestin, London Hosp.; James Maxwell, St. Bart.'s Hosp.; Alan A. Moncrieff and David C. Muir, Middlesex Hosp.; and Selwyn E. Tanner and Hubert N. Williams, Univ. Coll. Hosp.

*Branch III., Psychological Medicine.*—Alexander Walk, St. Bart.'s Hosp.

*Branch IV., Midwifery and Diseases of Women.*—Daryll C. Corry, Univ. Coll. Hosp.; and Gladys Hill and Dorothy M. Howgate, London Sch. of Med. for Women.

*Branch V., State Medicine.*—Joseph V. Landau, St. Bart.'s Hosp. and Univ. Coll. Hosp.

A course of six lectures on the Physiology of Reproduction will be given by Dr. A. S. Parkes at University College on Jan. 18th and 25th, Feb. 1st, 8th, 15th, and 22nd, at 5.30 P.M.

A course of eight lectures on Metabolism of Carbohydrate and Fat will be given by Dr. J. A. Hewitt, at King's College, on Jan. 21st and 28th, Feb. 4th, 11th, 18th, and 25th, and March 4th and 11th, at 5 P.M. Admission is free without ticket.

UNIVERSITY OF LIVERPOOL.—At recent examinations the following candidates were successful:—

MASTER OF HYGIENE.

*First Examination, Part II.*—B. L. Davis.

DIPLOMA IN PUBLIC HEALTH.

*Part II.*—G. L. Brocklehurst, C. Cookson, A. O. Ross, and C. H. Walsh.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—On Jan. 18th and on the following Monday, Wednesdays, and Fridays, until Jan. 29th, Sir Arthur Keith will give a series of six lectures at the College, at 5 P.M. each day, on Fossil Remains of Apes and Man, and their Bearing on the Evolution of Human Races. The lectures will be illustrated by preparations from the museum and by lantern slides. On Jan. 18th he will discuss the Anatomical Characters of the Galilee Skull.

TUBERCULOSIS SOCIETY.—Following an address on Tuberculosis in Wales, by Prof. Lyle Cummins, at 1, Upper Montague-street, Russell-square, London, W.C., at 8 P.M., on Jan. 15th, there will be an opportunity for members of the society to attend the annual meeting of the Society of Superintendents of Tuberculosis Institutions on Monday, Jan. 18th, at 3 P.M. The meeting will be held at 122, Harley-street, London, W., and there will be a discussion on Occupational Therapy, in which papers will be read by Dr. J. E. Chapman, Lieut.-Colonel J. R. Lord, Mrs. Kimmins, of the Heritage Craft Schools, Chailey, Dr. Jane Walker, and Dr. Esther Carling. Dr. Lucas Hammond will read a paper on Phthisical Psychology.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Dr. Herbert Spencer will give the opening lecture of the new series, arranged by the Fellowship and free to members of the medical profession, on Thursday, Jan. 21st, at 5 P.M., in the lecture hall of the Medical Society, 11, Chandos-street, London, W. Dr. Spencer will speak on Abdominal Palpation in Pregnancy (with lantern demonstration). A comprehensive course in Venereal Diseases will begin at the London Lock Hospital on Feb. 1st and continue till Feb. 27th. There will be instruction in the out-patient department and lectures on different aspects of the diseases. At the Blackfriars Hospital for Diseases of the Skin an afternoon course in Dermatology will be held from Feb. 1st to 8th. A three weeks' combined course in Diseases of Children will be given from Feb. 8th in which the Paddington Green Children's Hospital, the Victoria Hospital, and the Children's Clinic will participate. There will be morning and afternoon sessions held in all the various departments of the hospitals. A late afternoon course (4.30 to 6) will take place at the London Temperance Hospital from Feb. 8th to 19th for the convenience of the general practitioner. Queen Mary's Hospital, Stratford, will give a general intensive course in medicine, surgery, and the special departments from Feb. 15th to 27th. Daily sessions will be held from 10.30 A.M. to 5 P.M., including demonstrations of clinical methods and groups of illustrative cases. A special feature of the course will be the opportunity for the practical study of gynæcology and obstetrics. A copy of each syllabus of the foregoing courses and of the programme of the General Course may be had on application to the secretary of the Fellowship, 1, Wimpole-street, London, W. 1.

GLOUCESTERSHIRE ROYAL INFIRMARY.—This hospital is to be enlarged by the addition of an eye department and a laundry, at a cost of £12,000.

NATIONALISATION OF HOSPITALS.—An address on this subject will be delivered to-day (Friday) at the headquarters of the Incorporated Association of Hospital Officers, 28, Bedford-square, London, W.C., by Mr. Somerville Hastings, F.R.C.S., at 7.30 P.M.

MEDICO-LEGAL SOCIETY.—A meeting will be held at 11, Chandos-street, Cavendish-square, London, W., on Jan. 19th, at 8.30 P.M., when a paper read by Dr. Godfrey Carter and Dr. Herbert W. Southgate on the Excretion of Alcohol in Urine as a Guide to Alcoholic Intoxication will be followed by a discussion.

Lord Ampthill, for many years chairman of the Central Committee for the State Registration of Nurses, was recently presented with a specially bound copy of the State Register of Nurses in recognition of his services to the nursing profession. The presentation was made by Mrs. Bedford Fenwick, the secretary of the committee, with whose name Lord Ampthill said the register would always be associated.

THE VOLUNTARY HOSPITAL SYSTEM.—The Adelphi Literary and Social Circle has arranged a debate on a motion by Mr. A. S. Coombes, that the Voluntary Hospital System has proved Inadequate to the Needs of the People, which will be held on Tuesday, Jan. 19th, at 8 P.M., in the ballroom of the Lyceum Club, 138, Piccadilly, London, W. Councillor Mrs. Lionel Harris will preside and Mr. Gilbert G. Panter, secretary of the Royal Northern Group of Hospitals, will oppose the motion.

NATIONAL MEMORIAL TO QUEEN ALEXANDRA.—The scheme for the Queen Alexandra National Memorial Fund for the assistance of Queen Victoria's Jubilee Institute for Nurses was inaugurated by a meeting at the Mansion House, London, on Thursday of last week, under the chairmanship of the Lord Mayor. It was announced that £10,500 had already been subscribed, and it is understood that considerable additional donations have since been received. A small portion of the total is to be devoted to a "visible memorial" of Queen Alexandra.

ROYAL INSTITUTION.—On Tuesday, Jan. 19th, at 5.15 P.M., Prof. J. A. Crowther will give the first of two lectures at the Royal Institution, on X Rays and Living Matter. On Thursday, Jan. 21st, at the same hour, Prof. C. J. Patten will give the first of two lectures on the Language of Birds and the Breeding Factor in Birds; and on Saturday, Jan. 23rd, at 3 P.M., Mr. Henry Balfour will lecture on the Evolution of Coinage. The Friday evening discourse on Jan. 22nd will be delivered by Sir William Bragg on the Work of the Davy Faraday Research Laboratory, and on Jan. 29th by Sir William B. Hardy on Films.

LECTURES ON INFANT CARE.—A course of lectures on infant care, especially intended for creche nurses and probationers, will be given in the lecture hall, Carnegie House, 117, Piccadilly, London, W., on Thursdays, at 7.30 P.M., from Jan. 21st to March 25th. The lecturer will be Dr. Victoria Bennett, and the subjects of the first three lectures will be Duties to the New-born Baby, Natural Feeding, and Artificial Feeding. The course is in preparation for the Creche Nurses' Advanced Certificate, granted by the National Association for the Prevention of Infant Mortality and the National Society of Day Nurseries, and an examination will be held at the end, on March 27th. The fee for the ten lectures will be 10*s.*, or for any single lecture 1*s.* 3*d.*, and tickets may be obtained from Miss Maddock, 117, Piccadilly, London, W. 1.

PRESENTATION TO PROF. RUTHERFORD MORISON.—At the end of 1924 a movement was started amongst members of the profession to commemorate the work of Emeritus Professor Rutherford Morison, of Newcastle. It was decided to appeal to the profession for subscriptions to present Prof. Morison with his portrait in oils, and after defraying the cost of the portrait to devote the balance either to the formation of a medical library fund or the establishment of a scholarship or fellowship in research, or such other objects as Prof. Morison might approve. In June last we published the third list of subscriptions, which amounted to £1528. It is now announced that the portrait, painted by Mr. Harold Knight, will be presented to Prof. Morison on behalf of the subscribers by Prof. H. Brunton Angus at the College of Medicine, Newcastle-on-Tyne, on Thursday, Jan. 21st, at 4 P.M. It is hoped that as many subscribers as possible will attend.

MIDDLESEX HOSPITAL REBUILDING FUND.—The rebuilding fund of the Middlesex Hospital now stands at £273,000, having risen from £246,000 in less than a month.

Princess Mary Viscountess Lascelles is to lay the foundation-stone of the extension of the Royal Infirmary, Sunderland, on Feb. 17th.

POST-GRADUATE COURSE AT SHEFFIELD.—A course of clinical demonstrations open to all qualified medical practitioners without fee is to be held in Sheffield, mainly at the Royal Infirmary, from January to March. Particulars will be found weekly in our Medical Diary.

HUNTERIAN SOCIETY.—The annual dinner will be held at the Hotel Victoria, Northumberland-avenue, London, W.C., on Thursday, Feb. 11th, at 7.30 P.M. Applications for tickets may be sent to Mr. A. E. Mortimer Woolf, 94, Harley-street, London, W. 1.

A FURTHER application by Dr. F. W. Axham to the Royal College of Surgeons of England for the return of his diploma is receiving the consideration of the Council. It will be recalled that Dr. Axham's diploma was forfeited in 1911 following the erasure of his name from the Medical Register on account of his association with Mr. (now Sir Herbert) Barker. The Royal College of Physicians of Edinburgh is also likely to consider the question of sending back its diploma to Dr. Axham.

LIGHTING OF COAL MINES.—The next meeting of the Illuminating Engineering Society will be held at the house of the Royal Society of Arts, 18, John-street, Adelphi, London, at 7 P.M. on Thursday, Jan. 21st, when a discussion on the Lighting of Coal Mines will be opened by Mr. Eric Farmer, investigator to the Industrial Fatigue Research Board. Those interested are invited to apply for tickets to the Hon. Secretary, Mr. L. Gaster, 32, Victoria-street, London, S.W. 1.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—The annual general meeting of this association is to be held on Friday, Feb. 5th, at 11, Chandos-street, Cavendish-square, London, W., when Dr. R. A. O'Brien, director of the Wellcome Physiological Research Laboratories, will read a paper on the Prevention of Diphtheria and Scarlet Fever by Modern Methods. If possible, reactions will be shown. Dr. O'Brien's paper is to be read at 5 P.M., following a business meeting at 4.15 P.M., and tea at 4.30 P.M.

CHELSEA CLINICAL SOCIETY.—A meeting of this society will be held at the Florence Restaurant, 56, Rupert-street, London, W., on Tuesday, Jan. 19th, at 8.30 P.M. It will be preceded by dinner, commencing at 7.30 P.M.; members intending to dine should inform Dr. L. D. Bailey, 42, Eaton-terrace, London, S.W. 1. The price of the dinner will be 5*s.*, exclusive of wine, and guests will be welcome. After the dinner there will be a discussion on Heliotherapy, in which Dr. Leonard Hill, Sir Henry Gauvain, Dr. Henry MacCormac, and Dr. Howard Humphris will take part.

SMALL-POX IN YORKSHIRE.—Although there are over 120 cases of small-pox in the rural area around Rotherham, the town itself, owing to the prompt steps taken by the health authorities, is almost immune. Only two cases have been reported. The Ministry of Health has warmly commended the Rotherham district authorities for their prompt diagnosis and isolation of all cases. Home contacts have been put into quarantine—usually for 24 hours—to permit of thorough disinfection of infected houses. Each contact has been kept under almost daily supervision for three weeks, and it is a striking fact that all contacts have accepted vaccination during the period of quarantine.

PSYCHOLOGY IN THE NURSERY.—A series of six lectures for mothers, under the general title of Everyday Psychology in the Nursery, is to be given at Carnegie House, 117, Piccadilly, London, W., beginning on Feb. 17th, at 3.15 P.M., and continuing upon the Wednesdays following. The first lecture is entitled the Super-sensitive Child, and will be given by Dr. Mary Heming Rees, whilst the other lecturers will be Dr. Elizabeth Sloan Chesser on the Problems of the School-girl, Dr. Kenneth Dickson on Health and Character, Dr. Howard Humphris on Sunlight and Psychology, and Miss Alice Jackson on Children's Books. To end the series there will be a lecture by Dr. J. R. Rees on March 24th at 6 P.M., for fathers as well as mothers, which is to be called Some Problems in Family Adjustment. Further particulars may be obtained from the Viscountess Erleigh, 65, Rutland-gate, London S.W. 7, or Mrs. Ernest Shaw, 65, Conduit-street, W. 1.

POST-GRADUATE DENTAL COURSE.—A course of seven lectures is to be given at the Royal Dental Hospital of London, Leicester-square, W.C., on Jan. 20th, and the following Wednesdays until March 3rd, at 5.30 P.M. each day. The subjects of the first two lectures will be Mouth Breathing and the Mouth as a Focus of Infection. The remaining titles and the names of the lecturers may be found weekly in our Medical Diary. The lectures will be open to all who are interested, without fee or ticket.

INQUESTS IN SALFORD.—During 1925 Mr. A. Holmes, the Salford coroner, received notification of 396 deaths and 269 inquests were held. In 110 cases the verdict was "Death from natural causes." Six males and four females committed suicide by poisoning and in three other cases death was due to accidental poisoning. Four males were found drowned. Thirteen females and five males died following injuries received in the streets, and 13 males and 10 females succumbed to injuries after being run over. There were 16 fatal burning cases. Three women died through drinking in excess.

PEOPLE'S LEAGUE OF HEALTH.—A series of eight lectures on the Mind and What We Ought to Know About It will be delivered at the house of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., beginning on Feb. 1st, at 6 P.M. The following is a list of lecturers and subjects: Sensation, Perception, Ideation, and Attention, Dr. R. H. Cole; Mind and Body, Sir Frederick Mott, F.R.S.; Association of Ideas, Recognition, and Memory, Dr. Thomas Beaton; Habit, Adaptation, Sir Maurice Craig; Crime and Delinquency, Dr. W. A. Potts; Fatigue and Sleep, Dr. H. Crichton-Miller; Primitive Instinct, Dr. E. D. Macnamara; Mental Deficiency, Dr. A. F. Tredgold. Further particulars may be obtained from the offices of the League, 12, Stratford-place, London, W. 1

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

### ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

**Tuesday, Jan. 19th.**

GENERAL MEETING OF FELLOWS: at 5.30 P.M.
Ballot for election to the Fellowship.

PATHOLOGY: at 8.30 P.M.
*Paper:*
Dr. Sidney Dickenson: A Simple Method of Isolating and Handling Individual Spores and Bacteria.

**Wednesday, Jan. 20th.**

HISTORY OF MEDICINE: at 5 P.M.
*Paper:*
Dr. Alfred G. Francis: On a Romano-British Surgical Instrument, probably a Castration Clamp used in the Rites of Cybele.

**Thursday, Jan. 21st.**

DERMATOLOGY: at 5 P.M. (Cases at 4 P.M.)
*Cases* will be shown.
*Paper:*
Prof. Levaditi: New Discoveries in the Chemotherapy of Syphilis.

**Friday, Jan. 22nd.**

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.)
*Communication:*
Dr. D. J. Hishon (introduced by Dr. J. D. Rolleston): Gangrene of Legs following Measles (photograph).
*Cases* will be shown.

EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.
*Paper:*
Prof. E. W. Hope (Liverpool): The Influence of the Universities on the Advancement of the Public Health.

ROYAL INSTITUTION, Albemarle-street, W.
TUESDAY, Jan. 19th.—5.15 P.M., Dr. J. A. Crowther: X Rays and Living Matter.
FRIDAY.—9 P.M., Sir William Bragg: The Work of the Davy Faraday Research Laboratory.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.
THURSDAY, Jan. 21st.—8.15 P.M., preceded by a Demonstration at 7.45. Dr. James Hasson will make an announcement on a New Procedure in the Diagnosis and Treatment of Leprosy. Lieut.-Colonel W. P. Macarthur, R.A.M.C.: An address on Old-Time Plague in Britain.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.
MONDAY, Jan. 18th.—3 P.M. (at 122, Harley-street): Discussion on Occupational Therapy, and papers will be read by Dr. J. E. Chapman, Lieut.-Colonel J. R. Lord, O.B.E., Mrs. Kimmins, Dr. Jane Walker, and Dr. Esther Carling. Dr. A. Lucas Hammond will also read a paper on Phthisical Psychology.

MEDICO-LEGAL SOCIETY.
TUESDAY, Jan. 19th.—8.30 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. G. Carter and Dr. Herbert W. Southgate: The Excretion of Alcohol in Urine as a Guide to Alcoholic Intoxication.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, Jan. 18th.—5 P.M., Sir Arthur Keith: The Anatomical Characters of the Galilee Skull.
WEDNESDAY.—5 P.M., The Interpretation of Endocranial Casts from Skulls—Ancient and Modern.
FRIDAY.—5 P.M., Ancient Dwellers in the Thames Valley.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Jan. 18th, to SATURDAY, Jan. 23rd.—BETHLEM ROYAL HOSPITAL, S.E. Lecture-demonstrations in Psychological Medicine at 11 A.M. Tues. and Sat., Dr. Porter Phillips and Dr. Thomas Beaton: The Psychoses.—NORTH-EASTERN FEVER HOSPITAL, St. Ann's-road, Tottenham. Wed., 2.30 P.M., Sat., 11 A.M., Dr. Frederic Thomson: Demonstration in the Diagnosis and Treatment of the Acute Infectious Diseases.—LONDON HOSPITAL. Tues., 2 P.M., Special Clinical Demonstration by Mr. Souttar.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W. Intensive Course (first week).—QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, N. Special course, daily lectures, and demonstrations.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Special course in the Diagnosis and Treatment of Common Diseases of the Nervous System. Lecture-demonstrations at 5 P.M. throughout the week.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Jan. 18th.—4.30 P.M., Prof. Hugh MacLean: Diabetes and Insulin in General Practice.
TUESDAY.—4.30 P.M., Dr. Frederic Thomson: Recent Advances in Scarlet Fever and Diphtheria.
WEDNESDAY.—4.30 P.M., Dr. P. Manson-Bahr: The Treatment of Dysentery.
THURSDAY.—4.30 P.M., Mr. W. E. Tanner: Chronic Abdominal Pain.
FRIDAY.—4.30 P.M., Dr. L. R. Yealland: Hysterical Fits.
Daily, 10.30 A.M. to 1 P.M., Demonstrations of Clinical Methods. 2 P.M., to 4 P.M., Groups of Selected Cases and General Hospital Work.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Jan. 19th.—5 P.M., Dr. Knowsley Sibley: Electro-therapeutics.
THURSDAY.—5 P.M., Pathological Demonstration.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.
WEDNESDAY, Jan. 20th.—5.30 P.M., Mr. A. L. Packham: Mouth-breathing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.
WEDNESDAY, Jan. 20th.—Dr. Harrison: The Tests of Renal Efficiency.
THURSDAY.—4 P.M., Dr. D. Paterson: Constipation and its Management.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.
THURSDAY, Jan. 21st.—5 P.M., Mr. J. B. Banister: Late Manifestations of Puerperal Sepsis.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Jan. 22nd.—4 P.M., Mr. Arbour Brown: Lateral Sinus Thrombosis.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.
FRIDAY, Jan. 22nd.—4.30 P.M. (at Whitworth-street West Branch), Dr. W. Fletcher Shaw: Urinary Symptoms in Women.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINIC.
FRIDAY, Jan. 22nd.—3.30 P.M. (at the Royal Hospital), Dr. Skinner: Clinical Examination of Neurological Cases.

# Appointments.

INGRAM, J. T., M.B., B.S. Lond., has been appointed Pathologist to St. John's Hospital for Diseases of the Skin, Leicester-square.

SHERIDAN, MAY, M.B. Liverp., Assistant School Medical Officer for the County of Cheshire.

Certifying Surgeons under the Factory and Workshop Acts: PRESTON, J. A., M.D. Brux., L.R.C.P. Lond., M.R.C.S. (Oxted); JOLLY, G. A., M.B., Ch.B. Edin. (Orkney); and ARCHIBALD, A., M.B., Ch.B. Edin. (Renfrew).

Edinburgh Royal Maternity and Simpson Memorial Hospital: FERGUSON, J. H., M.B., C.M. Edin., F.R.C.P., F.R.C.S. Edin. and WATSON, B. P., M.D., F.R.C.S. Edin., Physicians.

# Vacancies.

*For further information refer to the advertisement columns.*

*Barnsley County Borough.*—Asst. M.O.H., &c. £600.
*Birmingham, Queen's Hospital.*—Hon. P.
*Bradford Children's Hospital.*—H.S. £100.
*Bradford Royal Infirmary.*—Two H.S.'s. Each £150.
*Bridge of Weir, near Glasgow, Consumption Sanatorium for Scotland Colony for Epileptics.*—Res. Lab. Worker.
*Burnley, Victoria Hospital.*—H.S. £180.
*City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.*—H.P. At rate of £100.
*Colombo Municipality, Ceylon.*—Jun. Asst. M.O.H. Rs.7200.
*Derby County Borough.*—Asst. M.O. £600.
*Dundee Royal Infirmary.*—Hon. Asst. Ophth. S.
*Edinburgh, Elsie Inglis Memorial Maternity Hospital, Spring Gardens, Edinburgh.*—Jun. Hon. Obstet. S.
*Edinburgh, Royal Infirmary.*—Two Asst. M.O.'s. £450 and £350 respectively.
*Elizabeth Garrett Anderson Hospital, Euston-road, N.W.*—Asst. Pathologist. £150
*Evelina Hospital for Children, Southwark, S.E.*—H.P. At rate of £120.
*Guy's Hospital.*—Phys. for Psychological Med.
*Hospital for Sick Children, Great Ormond-street, W.C.*—Res. Med. Supt. £300.
*Ilford Urban District Council.*—Chief Asst. M.O.H. £700.
*Leeds Public Dispensary.*—Sen. Res. M.O. £200.
*Lincoln County Hospital.*—Sen. H.S. At rate of £200.
*Liverpool, Royal Southern Hospital.*—Anæsthetist. £50.
*Manchester, Ancoats Hospital.*—H.P. At rate of £100.
*Manchester Committee on Cancer.*—Special Investigation Officer. £600.
*Metropolitan Hospital, Kingsland-road, E.*—Asst. P.
*Middlesex County Council Sanatorium, Harefield.*—Third Asst. Res. M.O. £400.
*Mount Vernon Hospital, Northwood, Middlesex.* — Hon. Anæsthetist.
*Oswestry, Shropshire Orthopædic Hospital.*—H.S. £200.
*Perth, James Murray's Royal Asylum.*—Asst. P. £300.
*Royal Chest Hospital, City-road, E.C.*— Clin. Assts.
*Shanghai Municipal Council, Public Health Dept.*—Asst. Health O. Tls.700 per mensem.
*Southport Convalescent Hospital and Sea-Bathing Infirmary.*—Res. Med. Supt. £600.
*Stafford, Staffordshire General Infirmary.*—H.S. At rate of £200.
*Sudan Medical Service.*—Four M.O.'s £E.720.
*Ventnor, Isle of Wight, Royal National Hospital for Consumption and Dis. of Chest.*—Jun. Res. M.O. At rate of £250.
*Windsor, King Edward VII. Hospital.*—Hon. Asst. Ophth. S.
*Wolverhampton and Staffordshire Hospital.*—H.S. At rate of £15.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments for Certifying Factory Surgeons: Nailsea, Somerset; Southend, Essex; and Yarmouth, Isle of Wight.

# Births, Marriages, and Deaths.

## BIRTHS.

BEWLEY.—On Jan. 9th, at Courtfield-road, Kensington, the wife of Dr. Bewley, of a daughter.
CHAPMAN.—On Jan. 6th, the wife of R. D. Chapman, L.D.S., of Welbeck-street, W., of a son.
KEARNEY.—On Jan. 4th, the wife of Dr. Kearney, Eppingdale, Leytonstone-road, Stratford, of a son.
MAITLAND.—On Jan. 8th, at Golders Green, the wife of Charles Titterton Maitland, M.D., M.R.C.P., of a daughter.
RAINER.—On Sunday, Jan. 3rd, at "Shirlands," Herne Hill, S.E. 24, Kathleen, the wife of Dr. Charles Farrell Rainer, —a son.
TAYLOR.—On Dec. 31st, 1925, at Cannes, the wife of Major D. M. Taylor, I.M.S., of a daughter.

## DEATHS.

ANDREW.—On Sept. 21st, 1925, at Rangoon, Charles Todd Andrew, B.Sc., M.B., Ch.B., Surgeon on s.s. Lancashire, aged 46.
ATKINS.—On Jan. 1st, at Handley, Salisbury, Francis Robert Lowth Atkins, M.R.C.S., L.R.C.P., of Burford, Oxon., aged 41.
BOWEN.—On Jan. 4th, at Swilly House, Plymouth, Fleet Surgeon A. G. W. Bowen, R.N. (retd.), aged 62.
DAVIES.—On Jan. 3rd, at Hurtmore Croft, Godalming, Francis Joseph Davies, F.R.C.S. (late of Abercarn, Mon.), aged 74.
GIFFARD.—On Jan. 5th, of heart failure, Major-General Sir Gerald Godfray Giffard, K.C.I.E., C.S.I., I.M.S. (retd.).
JONES.—On Dec. 22nd, 1925, at 19, Paget-street, Cardiff, David Rhys Jones, L.R.F.P.S., L.S.A., aged 80.
MACKENZIE.—On Jan. 7th, at Santa Margherita, Ligure, Dr. H. M. MacKenzie, aged 56.
ROBERTS.—On Jan. 8th, suddenly, at Claremont-hill, Shrewsbury, Alfred Dean Roberts, M.R.C.S., L.R.C.P., aged 58.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## LEGISLATIVE MEASURES FOR THE CONTROL OF ALCOHOL AND DRUG ADDICTS.[1]

BY F. S. D. HOGG, M.R.C.S. ENG.,
MEDICAL SUPERINTENDENT, DALRYMPLE HOME FOR INEBRIATES.

NEARLY all civilised countries have laws regulating or restricting liquor traffic and the sale of habit-forming drugs. With regard to alcohol some merely legislate for the issue of licences, for the hours of sale of liquor, and for the penalties incurred by breach of the conditions laid down. Others have adopted State or local prohibition.

In many countries, however, there are laws the object of which is by punishment, or other means, to restrain, control and attempt to cure, the chronic or periodic drunkard or the drug addict. These statutes may be classified as follows: (1) Penal measures regulating punishment by fine or short term of imprisonment. (2) Control in penal establishments for lengthened periods. (3) Interdiction—i.e., laws prohibiting the sale of liquor to drunkards. (4) Guardianship Acts regulating the appointment of curators or guardians endowed with legal power over the estate (or the person) of an inebriate, or both. (5) Control in institutions or homes, with a view to reformative treatment: (*a*) for the inebriate who makes voluntary application for admission; (*b*) for the inebriate who is a police-court recidivist, or who has committed offences caused or contributed to by drink or drugs; (*c*) for the inebriate who refuses control and manages to keep out of the reach of the law.

Penal measures range from small fines to terms of imprisonment for varying periods. In New South Wales, Natal, and Kenya the maximum penalty is six months; in the Cape of Good Hope and Massachusetts it is 12 months; whilst in Michigan and Germany it is two years—which is the extreme penalty that may be inflicted in this country for being in possession of habit-forming drugs. In Germany they have a utilitarian method of dealing with habitual drunkards, for "whoever gives himself up to drink to such an extent that he cannot support himself or those for whom he is bound to provide" is subject to the maximum term (two years) in the workhouse or in employment on works of public usefulness.

### *Interdiction.*

Interdiction appears to be regarded with favour in many parts of the world. The usual type of interdicting legislation provides that any person who by the excessive drinking of liquor mis-spends, wastes or lessens his estate, or greatly injures his health, or endangers or interrupts the peace and happiness of his family, may be proceeded against and prohibited from obtaining liquor. His name is given to the various vendors of drink, who are liable to punishment, as are any other persons who supply him with liquor. The period of interdiction varies. It may be for a fixed period, or it may depend, as in Queensland, upon the opinion of magistrates. Or, as in Manitoba and elsewhere, the interdicted may have to prove that he has been sober for a certain number of months. Whilst this method is, no doubt, of value in sparsely populated countries or in small communities, such as Guernsey, it is unworkable in thickly populated areas. The inebriate may be well known in the vicinity of his abode, but a short excursion into adjacent territory will generally relieve him of this incubus.

The Drunkards Act of 1911 of British Columbia carries interdiction a step further. Upon the written request of husband or wife, or any blood relation, a petition may be filed in the Supreme Court praying that an habitual drunkard may be interdicted. If the person be found to be an habitual drunkard, and unable to manage his affairs, he is treated as a minor and someone is appointed to manage his affairs. The interdicted one may regain his legal rights when he can prove that he has refrained from drunkenness for 12 months. The names of interdicted persons are open to public inspection, and any contract, bargain, sale, or business transacted with an interdicted individual is held to be void. This is a form of guardianship.

Sweden has a system peculiar to itself, which was made familiar in this country under the name of the Gothenburg System. The Bratt System, by which name the plan is now known, is a development on national lines of the system which was inaugurated in Gothenburg in 1866. The Bratt System received legislative sanction and support in 1917. Under this scheme the liquor traffic, both wholesale and retail, is under the control of companies who ration the individual consumer and exercise constant and strict supervision over the purchases of their clients, taking away the

[1] Being an abstract of a paper read to the Society for the Study of Inebriety on Jan. 12th, 1926.

right to purchase from those who abuse that right. Ration or pass-books, which resemble cheque-books, are not issued to persons who are found guilty of drunkenness or certain crimes and misdemeanours. The rationing applies only to spirits and heavy wines, all persons being at liberty to purchase ad lib. the national light beers and wines—which are very light indeed when compared with those consumed in this country. It is claimed that the system has during the last ten years reduced the consumption of strong alcoholic drinks by 50 per cent., and had a proportionate effect in the reduction of sentences for drunkenness, while the alcohol addicts admitted to the central hospital for habitual drunkards fell from 584 in 1913 to 211 in 1923.

In some parts of Germany, Austria, Switzerland, Australia, Canada, and the United States, and in Tasmania, Jersey, and France, inebriates, in certain circumstances, can be placed, as if they were minors or insane, for their own benefit and for that of those dependent on them, under the care of a guardian, trustee, or curator. The power has the effect of deprivation of civil rights, of control and management of property, and in some cases of the inebriate's control over his own person. In some countries a guardian can be appointed when there is alcohol or drug excess only, in others when there have been more than three convictions of drunkenness during the year, or other offences accompanying alcoholism. In others it has to be demonstrated, in addition, that the person is a spendthrift, is wasting his estate, or is unfit to manage his affairs.

*Control in Institutions or Homes.*

In many parts of the world there are statutes under which inebriates may place themselves voluntarily under control and treatment. In most instances the definition of an inebriate includes both alcohol and drug addicts. In Great Britain we have in addition to fines and short terms of imprisonment for drunkenness in public, or other offences, the power given to a court to inflict severe sentences of fines up to £200 and six months' imprisonment for a first offence, and £500 and two years' imprisonment for being a second time in illegal possession of certain habit-forming drugs.

The Dangerous Drugs Act has, so far as I am able to judge by the greatly reduced number of applications which I receive for the admission of drug cases, been productive of good. The few applications I have received during recent years have been nearly all from those who have daily access to such drugs—i.e., doctors, dentists, and chemists. It is for many addicts a prohibition law and allows the control of the person (in prison) who breaks the law. Interdiction (the "Black List") under the Licensing Act, 1902, is practically a dead letter. Our country is too crowded for this measure to be of real value. Under the Inebriates Acts, 1879–1899, we have control in retreats for the inebriate who makes voluntary application for admission. Any person desirous of admission to an inebriate retreat is required by this Act to sign a request for reception in schedule form before a justice of the peace. Such request must be for a definite period, not exceeding two years, to be named in the application. Two relatives or friends, of either sex, of the applicant must also sign a statutory declaration before a justice or a commissioner for oaths, to the effect that the applicant for admission is an inebriate within the meaning of the Acts. The definition runs as follows: "An 'habitual drunkard' is defined in the Act of 1879 as meaning a person who is, by reason of habitual intemperate drinking of intoxicating liquor, *at times* dangerous to himself or herself or others, or incapable of managing himself or herself, and his or her affairs. It will be noted that there is no reference to drug addiction, but a note was issued from the Home Office to the effect that 'intoxicating liquor' may include liquors other than alcohol, if their habitual intemperate use brings the consumer into the condition of an 'habitual drunkard.'" The intending patient must then voluntarily enter the retreat premises, where he may be detained until the expiration of the period for which he has signed. Should he escape at any time during the period of legal detention, a warrant may be issued for his apprehension and remission to the retreat. But he may be discharged before the completion of the period for which he has signed if such a course is considered advisable for various reasons; for instance, because further treatment is unnecessary, for urgent private affairs, or for ill-health. Or he may be allowed to leave the retreat on leave of absence and to complete—so long as he abstains from intoxicants—his period at home or elsewhere. I frequently advise intending applicants for admission to sign for the maximum period (two years) in order that they may have a long period of some control on leave of absence.

The alcohol or drug addict will often bargain that he is to be a free agent and arbiter of the duration of his treatment. Undoubtedly in some cases it is better to let him be a free party to his reformation, for ultimately it must rest with him to continue to abstain and to fight any inclination or temptation to relapse; but in other cases this liberty of action is inadvisable. Patients may be anxious to get back to ordinary life; or they may feel so fit after a brief treatment that they feel fully able to face the world and its temptations. Their treatment is cut short, and too frequently disaster follows. It is in guarding against some of these types that voluntary control under the Act is helpful. It is also advantageous for the relative or friend of the addict, who puts up money for his treatment.

In addition to voluntary control there exists under the Act power to control in State inebriate reformatories or certified inebriate reformatories those inebriates who commit certain offences against the law. At the present time, however, partly owing to economical reasons and because reformatories are filled up with border-land cases and mental deficients and other hopelessly incurable persons, and partly owing to the doubtful wording of the Act and the misinterpretation of its provisions by magistrates, there are no such institutions to which law-breaking inebriates can be sent. We have no guardianship laws for inebriates, nor have we any compulsory control of addicts who do not get "run-in" frequently or do not break laws.

*Control in Great Britain.*

For the benefit of those who refuse treatment enforced control is the only practical remedy. And in those cases where immediate action is desirable, it should be possible to obtain an urgency order of detention.

Sir William Willcox pointed out in 1923 that special institutions and staffs would be required for the treatment of large numbers of cases; that these do not exist in this country, and that provision for them would be necessary before any legal enforcement for compulsory treatment were enacted. Doubtless the Government would not pass a measure of the sort if it could not see its way to providing the required institutions, but there would not be the same objection to the addition of a clause to the Inebriates Act, allowing the appointment of a guardian to control the person and estates of inebriates who are wasting their possessions and exposing their families to future destitution.

There was presented to the House of Commons in 1913, by Mr. Ellis Griffiths, a well-considered Bill to repeal and replace the present Inebriates Act. This contained clauses (*a*) to allow a person to enter into an undertaking to abstain from intoxicants for a period not less than one year; or (*b*) to submit himself and the control of his person, for a period not exceeding one year, to the guardianship of a guardian who could prescribe a place of residence and who could prevent him obtaining intoxicants. A failure in the former case involved liability to committal to a retreat; in the latter it involved the appointment of a judicial guardian; or (*c*) to apply for admission to a retreat. (*d*) To allow the judicial authority power in certain circumstances to grant a compulsory order of committal to a retreat at request of guardian, relative, or friend. (*e*) To allow a compulsory order for the appointment of a judicial guardian and of maintenance out of the estate of the inebriate, of dependent persons. These proceedings could be held in private.

The Bill also contained provisions as to inebriates guilty of offences and the definition of "inebriate" included drug addicts. This Bill was, unfortunately, shelved owing to the outbreak of war. The clauses I have referred to were recommendations contained in the Report of a Departmental Committee appointed in 1898 to inquire into the operation of the law relating to inebriates and their detention in reformatories and retreats. An article on this report appeared in THE LANCET of Jan. 30th, 1909.

I think that nearly all, if not all, who have been brought into intimate contact with inebriates are far from content with the measures we possess in this country for dealing with them. Great Britain lags behind her colonies and other countries in not legislating for the control of the non-criminal addict, and therefore in not giving relief to unfortunate wives, husbands, children, and other relations.

I wish to acknowledge my great indebtedness to Dr. R. Welsh Branthwaite, H.M. Inspector under the Inebriates Act, for information and assistance, and also to numerous gentlemen in all parts of the world who have courteously responded to my requests for information.

## WEBSTER'S ROYAL RED BOOK.

THE new (267th) edition of Webster's Royal Red Book (London: A. Webster and Co., pp. 736, 7*s.* 6*d.*) has reached us. The statement on the front page that the work is corrected up to the latest moment before going to press is confirmed by internal evidence. The main content of this useful volume is an alphabetical list and a street list of the "nobility and gentry" occupying houses in London. Business firms, clubs, societies, and institutions are included, also lists of the personnel of Government offices and of the Houses of Parliament. Theatre plans conclude a handy and serviceable book.

## THE CONTROL OF TINEA CRURIS IN SCHOOLS.

IN 1922 Dr. Norman Hallows contributed an article to our columns [1] on the Control of Tinea Cruris (eczema marginatum, tinea marginatum, or dhobie itch). Correspondence followed, in which the late Dr. Clement Dukes [2] (Rugby) described how he had been led to try chrysarobin treatment, and later we published an article by Dr. Arthur Whitfield [3] on the Treatment of Ringworm in which tinea cruris was considered. In 1925 the Headmasters' Conference invited representatives of the Medical Officers of Schools Association to suggest measures for dealing with this widespread nuisance of schools, and Dr. L. R. Lempriere (Haileybury), Dr. Norman Hallows (Marlborough), and Dr. A. I. Simey (Rugby) were appointed to draw up recommendations. We publish the substance of these recommendations below.

Tinea cruris is probably spread by dust and by infected towels and garments. It is certainly much more prevalent in the community at large than is generally supposed, and although it chiefly affects the groins, armpits, and toes, it may, if neglected, appear elsewhere on the body.

To prevent fresh cases being imported at the beginning of the term the medical officer should have permission at his discretion to examine all boys in the senior houses when the term opens, and at such other times as circumstances warrant. The coöperation of boys and parents should be sought, and boys should be instructed to report redness and/or irritation of the thigh. Neglect to do so should be regarded as a serious offence against the community. Changing-rooms, drying-rooms, and lavatories should be adequate for their purpose, and every care should be exercised to ensure cleanliness and tidiness after use. Laundry arrangements of the school must be entirely satisfactory from a hygienic point of view. The danger of infection would be greatly decreased if (1) pants were worn with cloth clothes throughout the year, and if (2) where serge shorts are used, bathing drawers were worn underneath them. O.T.C. uniforms should be disinfected whenever their ownership is changed. Studies should be kept tidy and overcrowding avoided, and curtains, hangings, and draperies should be discouraged. Boots, flannels, uniform, and toilet articles should not be kept in studies, and any floor coverings used in dormitories ought to be removed and washed periodically.

A period of isolation accompanied by adequate disinfection is an essential part of treatment in every case, and in order that this may be as short as possible, the treatment hereafter described should be followed.

The leaflet accompanying these recommendations is to this effect:—

1. The naked-eye appearance of tinea cruris is usually so characteristic that a diagnosis can be made without microscopic examination. The fungus is not always easy to detect even in obvious cases of the disease, but experience shows that the very large majority of rashes in the groin area in schoolboys are due to infection by it. The whole surface of the body, especially the axillæ and internatal cleft, should be carefully examined to determine the extent of the disease at the outset.

2. The case should be isolated at once and kept in bed during sanatorium or bedroom treatment.

3. For at least six days apply thickly-spread dressings of either ung. chrysarobini B.P. or ung. ararobæ B.P.C. once daily and retain them in position by means of bandages or bathing-drawers, or else use liberal inunctions of the same twice daily. Where only one thigh is found to be infected both must be treated. It is essential to use a reliable and active sample of the ointment; that supplied by the General Apothecaries Co. has been found uniformly good.

4. During the period of treatment in bed the patient should be examined daily.

5. At the end of this period, provided that the applications have been adequate, it will be found that the central infected area has become smooth and pale with a surrounding red line and erythematous band at the junction of the infected and normal skin.

6. When a satisfactory result has been obtained the patient should have a hot bath and wash the affected area thoroughly with soap. (Baths are not advised during the period of treatment.) Clean disinfected clothing is then put on and the patient may then be discharged as free from infection.

7. As an additional precaution after discharge ung. ac. benzoici co. B.P.C. should be applied daily to the affected parts for from two to three weeks.

8. It is advisable that boys, after the course of chrysarobin treatment, should be inspected at weekly intervals and should report to the medical officer on return to school.

9. Disinfection is an essential part of the treatment, and should this be inadequate reinfection is almost certain to occur. Towels and all articles of clothing and bedding which may have come in contact with the infection should be either boiled or treated in a steam disinfector.

10. Desquamation between the toes should be carefully treated whenever it exists, either with the ointments above mentioned or by painting with tinct. iodi fort.

[1] THE LANCET, 1922, ii., 791.
[2] Ibid., 1922, ii., 833 and 883.
[3] Ibid., 1923, i., 1125.

## RECURRENT PIN-HEAD PUSTULATION.

*To the Editor of* THE LANCET.

SIR,—I shall be grateful for the advice of your readers on the treatment of the following case. Recurrent pin-head pustulation of the chin in a man aged 51. The condition has been troublesome for more than 30 years. There appears to be nothing relevant in family or personal history. Patient has had slight acid dyspepsia from childhood. The skin on the chin is the only part of skin affected—that over other areas is quite clear and normal. There is no seborrhœa of scalp; teeth and mouth healthy; skin fairly free from comedones. The small pustules arise very quickly, sometimes 8 to 12 or more appearing in a morning when there was none the previous day, but only very small foregoing papules. Varied treatment has been tried from time to time, but none has been successful—e.g., externally: sulphur, ā salicyl., preparations of mercury—all these in forms of lotion and ointments; lot. calamin co., ung. resorcin, iodex, lot. calc. sulph., pulv. ā boric c ā salicyl., 5 per cent.; internally: iron, arsen., sulphur, synthetic preps. of garlic, alkalies, aperients.

I am, Sir, yours faithfully,

West Africa, Dec. 7th, 1925. ACNE.

## MATERNITY AND CHILD WELFARE PROBLEMS.

A REPORT [1] has just appeared of the lectures and round-table talks at the Baby Week Summer School held last July. The two main subjects discussed were the Formation of Character and Maternal Mortality and Morbidity in Childbirth, and in both sections the council was happy in having experts for speakers. Under the first heading various phases of psychology were dealt with, the lecturers including Prof. William Brown, Dr. J. A. Hadfield, Dr. Eric Pritchard, Dr. M. D. Eder, and Dr. A. F. Tredgold, whose paper on the abnormal child was a particularly valuable contribution, dealing clearly and concisely with abnormality in regard to (1) instincts, (2) feelings, (3) intellect, (4) intelligence. One or two striking definitions were given, as when Dr. Hadfield said, "By temperament we mean the influence of the *bodily* condition upon the mind," or Prof. Brown, "Disease in general, whether physical or mental, is disorder which, originally functional, may become so pronounced as to cause structural change, which may be established in the course of successive generations." In the discussion on maternal mortality, it may be noted that medical men and women of such varied experience as Sir Arthur Newsholme, Dame Janet Campbell, Dr. A. E. Giles, Dr. Mabel Brodie, Dr. R. A. Lyster, Prof. E. W. Hope, and Dr. H. K. Waller, without exception spoke in favour of maternity homes or some sort of institutional facilities for childbirth. Dr. Brodie wished especially to see more provision for complicated cases during pregnancy, and Dame Janet Campbell spoke of the desire of the Ministry of Health that cases of puerperal fever should be cared for in a small number of institutions where they would have the advice of skilled obstetricians. This has since been carried into effect in London by the setting apart of quarters in three of the Metropolitan Asylums Board Hospitals for the purpose. The general standard of the papers read at the school was high, and the National Baby Week Council has rendered a useful service in publishing them in cheap and compact form.

[1] Published by the National Baby Week Council, London, 1925. Pp. 77. 1s.

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*Bactol Morgenstern.*—Messrs. E. H. Spicer and Co. inform us that this preparation (noticed in THE LANCET of Jan. 2nd, p. 24) is in future to be known as "B. Acidophilus Emulsion (Morgenstern)," under which name it has been admitted to the American "List of New and Non-Official Remedies."

*Longevity and Fertility.*—Mr. Robert Barr, of Magill, a suburb of Adelaide, who has recently celebrated his ninety-third birthday, went to South Australia in 1874 with his wife and ten children, nine of whom are still living. He is enjoying good health and has at present 68 grandchildren and 141 great-grandchildren.